EXHIBIT B46

Page 1

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF NEW JERSEY

IN RE: JOHNSON & JOHNSON TALCUM POWDER PRODUCTS
MARKETING, SALES PRACTICES,
AND PRODUCTS LIABILITY
LITIGATION

THIS DOCUMENT RELATES TO ALL CASES

Case No. 16-2738 (FLW) (LHG)

MDL Docket No. 2738

Friday, January 11, 2019

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The video deposition of SHAWN LEVY, Ph.D., taken pursuant to notice, was held at the Embassy Suites Huntsville, 850 Monroe Street S.W., Huntsville, Alabama, commencing at approximately 9:04 a.m., on the above date, before Lois Anne Robinson, Registered Diplomate Reporter, Certified Realtime Reporter, and Notary Public for the State of Alabama.

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Shawn Levy, Ph.D.

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1	APPEARANCES	1	INDEX	X	
2	COUNSEL FOR PLAINTIFFS' STEERING COMMITTEE:	2	EXAMINATION	PAGE	
3	BEASLEY ALLEN, P.C.		EXAMINATION	TAGE	
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_	BY: P. LEIGH O'DELL, Esquire	4	By Ms. Brown	7	
5	Leigh.odell@beasleyallen.com	5	By Mr. Ferguson	307	
6	JENNIFER K. EMMEL, ESQUIRE Jennifer.emmel@beasleyallen.com	6	By Ms. O'Dell	357	
7	BURNS CHAREST, LLP	7	By Ms. Brown	372	
	900 Jackson Street, Suite 500		•		
8	Dallas, Texas 75202	8	By Ms. O'Dell	389	
9	BY: MARTIN D. BARRIE, J.D., Ph.D. Mbarrie@burnscharest.com	9			
10	NAPOLI SHKOLNIK PLLC	10	****	*	
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11	Melville, New York 11747 BY: ALASTAIR J. M. FINDEIS, ESQUIRE	12	EXHIBITS		
12	Afindeis@napolilaw.com				
13	FOR THE DEFENDANT, JOHNSON & JOHNSON:	13	Deposition Exhibit Numb	er 1 14	
14	WEIL, GOTSHAL & MANGES, LLP	14	Notice of Deposition		
15	17 Hulfish Street, Suite 201 Princeton, NJ 08542-3792	15	Deposition Exhibit Numb	er 2 33	
	BY: ALLISON M. BROWN, ESQUIRE	16	Levy expert report		
16	Allison.brown@weil.com	17	Deposition Exhibit Numb	er 3 16	
17	WEIL, GOTSHAL & MANGES, LLP 767 Fifth Avenue		•		
18	New York, New York 10153-0119	18	Levy invoices of 5/2/18		
	BY: ALEXIS KELLERT, ESQUIRE	19	Deposition Exhibit Numb	er 4 19	
19 20	Alexis.kellert@weil.com SKADDEN, ARPS, SLATE, MEAGHER & FLOM, LLP	20	Government of Canada of	document regarding	draft screening
20	4 Times Square	21	assessment of talc		
21	New York, New York 10036	22	Deposition Exhibit Numb	er 5 21	
22	BY: Benjamin Halperin, Esquire Benjamin.halperin@skadden.com	23	Government of Canada d		notantial risk of
23	Benjanin.naiperin@skadden.com				potentiai iisk oi
24		24	lung effects and ovarian	cancer from talc	
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2		2	Deposition Exhibit Numb	er 6 23	
3	FOR THE DEFENDANT, IMERYS TALC AMERICA:	3	Draft manuscript regardi		and
J	GORDON & REES SCULLY MANSUKHANI, LLP				
4	816 Congress Avenue, Suite 1510	4	meta-analysis of the asso	ciation between peri	neal use of talc
_	Austin, Texas 78701	5	and risk of ovarian cance	er	
5	BY: KENNETH J. FERGUSON, ESQUIRE Kferguson@gordonrees.com	6	Deposition Exhibit Numb	er 7 30	
6	Kierguson@gordonices.com	7	Hamilton article		
7	COUNSEL FOR PTI:	8	Deposition Exhibit Numb	er 8 49	
8	TUCKER ELLIS, LLP		_		
9	233 S. Wacker Drive, Suite 6950 Chicago, Illinois 60606-9997	9	Judith Zelikoff expert rep	-	
-	BY: JAMES W. MIZGALA, ESQUIRE	10	Deposition Exhibit Numb	er 9 59	
10	James.mizgala@tuckerellis.com	11	Mayo Clinic website arti	cle entitled "Cancer'	'
11	COUNSEL FOR DERSONAL CADE DRODUCTS COUNCIL.	12	Deposition Exhibit Numb	er 10 72	
12	COUNSEL FOR PERSONAL CARE PRODUCTS COUNCIL:	13	Wikipedia page		
-	SEYFARTH SHAW LLP		Deposition Exhibit Numb	or 11 75	
		14	*		
13	975 F Street N.W.		Coussens and Werb artic	eie	
	Washington, D.C. 20004-1454	15			
13 14	Washington, D.C. 20004-1454 BY: RENÉE B. APPEL, ESQUIRE	15 16	Deposition Exhibit Numb	er 12 82	
14 15	Washington, D.C. 20004-1454		Deposition Exhibit Numb		porting the
14 15 16	Washington, D.C. 20004-1454 BY: RENÉE B. APPEL, ESQUIRE	16	•	Molecular Basis Sup	
14 15 16 17	Washington, D.C. 20004-1454 BY: RENÉE B. APPEL, ESQUIRE Rappel@seyfarth.com	16 17 18	Preprint manuscript of "N Association of Talcum P	Molecular Basis Sup	
14 15 16	Washington, D.C. 20004-1454 BY: RENÉE B. APPEL, ESQUIRE	16 17 18 19	Preprint manuscript of "! Association of Talcum P Ovarian Cancer"	Molecular Basis Sup Powder Use With Inc	
14 15 16 17 18	Washington, D.C. 20004-1454 BY: RENÉE B. APPEL, ESQUIRE Rappel@seyfarth.com VIDEOGRAPHER:	16 17 18 19 20	Preprint manuscript of "! Association of Talcum P Ovarian Cancer" Deposition Exhibit Numb	Molecular Basis Sup Powder Use With Inc er 13 82	
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14 15 16 17 18	Washington, D.C. 20004-1454 BY: RENÉE B. APPEL, ESQUIRE Rappel@seyfarth.com VIDEOGRAPHER: JULIE ROBINSON	16 17 18 19 20	Preprint manuscript of "! Association of Talcum P Ovarian Cancer" Deposition Exhibit Numb	Molecular Basis Sup Powder Use With Inc er 13 82 Dr. Saed	
14 15 16 17 18 19 20	Washington, D.C. 20004-1454 BY: RENÉE B. APPEL, ESQUIRE Rappel@seyfarth.com VIDEOGRAPHER:	16 17 18 19 20 21	Preprint manuscript of "Passociation of Talcum Passociation Cancer" Deposition Exhibit Numb December 26 Email to D Deposition Exhibit Numb	Molecular Basis Sup Powder Use With Inc er 13 82 br. Saed er 14 142	reased Risk of
14 15 16 17 18 19 20 21	Washington, D.C. 20004-1454 BY: RENÉE B. APPEL, ESQUIRE Rappel@seyfarth.com VIDEOGRAPHER: JULIE ROBINSON LOIS ANNE ROBINSON, RPR, RDR, CRR	16 17 18 19 20 21 22	Preprint manuscript of "! Association of Talcum P Ovarian Cancer" Deposition Exhibit Numb December 26 Email to D	Molecular Basis Sup Powder Use With Inc er 13 82 Or. Saed er 14 142 Plausibility in Suppor	reased Risk of

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1	INDEX-(continued)	1	A Good morning.
2	Deposition Exhibit Number 15 190	2	Q My name is Alli Brown. I represent
3	NTP study	3	Johnson & Johnson, and I'll start with some
4	Deposition Exhibit Number 16 192	4	questions for you here today.
5	2014 Citizens Petition to FDA	5	Dr. Levy, have you ever been deposed
6	Deposition Exhibit Number 17 208	6	before?
7	Buz'Zard study	7	A Yes.
8	Deposition Exhibit Number 18 218	8	Q And tell me, how many times?
9	"Perineal Talc Use and Ovarian Cancer," by Ross Penninkilampi	9	A In a setting like this, once.
10	Deposition Exhibit Number 19 249	10	Q Okay. What was the nature of that
11	Heller article	11	deposition?
12	Deposition Exhibit Number 20 270	12	A It was a patent litigation case.
13	Merritt paper - "Talcum Powder Chronic Pelvic Inflammation	13	Q Were you serving as an expert witness
14	and NSAIDs in Relation to the Risk of Epithelial Ovarian	14	in that case?
15	Cancer"	15	A I was.
16	Deposition Exhibit Number 21 326	16	Q Were you hired by the plaintiffs or the
17	Nunes article	17	defendants?
18	Deposition Exhibit Number 22 367	18	A The plaintiffs.
19	Park article	19	Q And, just generally, what were the
20		20	issues in that case?
21		21	A It was entirely focused on evaluation
22		22	of prior art in the genomic space.
23		23	Q And any time
24		24	And do you remember the name of that
	D 7		
	Dage /		Page 9
1	Page 7 VIDEOGRAPHER:	1	Page 9
1 2	VIDEOGRAPHER:	1 2	case, by the way?
2	VIDEOGRAPHER: We are now on the record. My name is	2	case, by the way? A I don't. It was, gosh, twelve years
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Shawn Levy, Ph.D.

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1	with a court reporter, under oath, et cetera.	1	with.
2	Q Understood.	2	Q Okay. In front of you is the
3	So this would then be the second time	3	plaintiffs' lawyer's laptop. Is that right?
4	you've been deposed in a setting like this.	4	A That's right.
5	A Correct.	5	Q Okay. And what is contained on the
6	Q Is that fair?	6	plaintiffs' lawyer's laptop?
7	Okay. So a few ground rules that you	7	MS. O'DELL:
8	may already be familiar with from your prior	8	I think I'd probably be better to speak
9	experience. First, we'll try not to speak over	9	to it.
10	each other. Is that fair?	10	MS. BROWN:
11	A That's fair.	11	No, no. Let's get it from the witness,
12	Q That way, our court reporter can get	12	and then if you want to make a statement for the
13	down all my questions and all your answers.	13	record, of course.
14	Okay?	14	Q Let's let's get your understanding
15	A (Nods affirmatively.)	15	of what's on this laptop in front of you.
16	Q If you don't understand a question of	16	A Other than what's on the USB drive that
17	mine, will you let me know?	17	I've been using, I I don't have any knowledge
18	A I will.	18	of what's on it.
19	Q Okay. Try to verbalize your answers,	19	Q Okay. Do you know what's on the USB
20	too, so our court reporter can take them down.	20	drive?
21	Okay?	21	A I do.
22	A Understood.	22	Q What's that?
23	Q Okay. If you need a break, let me	23	A It's a collection of literature cited
24	know, and we'll be happy to accommodate you.	24	in reliance literature list that from
	Page 11		Page 13
1	Do you understand you're under oath	1	my from my report.
2	here today, same as if you were in a court of	2	Q Did you put together the items that are
3	law?	3	contained on the USB drive that you have in front
4	A I do.	4	of you?
5	Q Okay. I am	5	MS. O'DELL:
6	And, before we get started, Doctor, I	6	Object to the form.
7	see you have a couple of items in front of you,	7	A Yes.
8	and I want to identify what we have for the	8	MS. BROWN:
9	record.	9	Q Is that your USB drive?
10	To your right is an iPad that is	10	A No. I put together the list.
11	showing the realtime of my questions and your	11	As far as who moved the files and
12	answers. Will you be using that to assist you in	12	organized the files on the USB, that, I don't
13	your testimony here today?	13	know.
14	A Yes.	14	Q Okay. Are all of the files on that USB
15	Q Okay. In front of you you have a	15	drive documents that you considered in connection
16	laptop computer.	16	with your opinion in this case?
17	A (Nods affirmatively.)	17	A They are.
18	Q Will you be using that to assist you in	18	Q Any other materials in front of you
19	your testimony?	19	that you'll be using to assist you in your
20	A Yes.	20	testimony here today?
21	Q And tell me, is this your laptop?	21	A There's a I have a hard copy of my
22	A It is not.	22	report.
23	Q Okay. Whose laptop is it?	23	Q Did you prepare that hard copy binder?
		1	
24	A The the attorneys I've been working	24	A No.

4 (Pages 10 to 13)

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Shawn Levy, Ph.D.

6 on the report that you have in front of you? 7 A No. 8 Q Okay. I'm gonna hand you what we have 9 marked as Exhibit 1 to your deposition, which is 10 a notice of your deposition. 11 (DEPOSITION EXHIBIT NUMBER 1 12 WAS MARKED FOR IDENTIFICATION.) 13 MS. BROWN: 14 Q And I'll ask, is this something that 15 you have ever seen before? 16 A Yes. 17 Q When did you see it? 18 A I'd have to review my email, but it was 19 some sometime ago, some weeks ago. 20 Q Okay. Have you brought any 21 And you understand that this Notice of 22 Deposition that we've marked as Exhibit 1 24 MS. BROWN: 26 MS. BROWN: 7 Q I'll mark as Exhibit 3 to your 8 deposition two invoices counsel for plaintiffs 9 just handed me, one dated May 2nd, 2018, ar 10 other dated January 8th, 2019. And we only 11 one copy, so let me hand it to you and ask you are these invoices that you created, Doctor? 12 are these invoices that you created, Doctor? 13 A They are. 14 Q Okay. And I want to take that back for one second. 15 one second. 16 Looks like the first entry on your invoice is dated May 16th, 2017. Does that so right to you? 18 A I'd have to review my email, but it was right to you? 19 A That sounds right. 20 Q When were you first approached about involvement in this case? 21 A Earlier in 2017. 23 requests that you bring certain documents with you here today? 24 A Leigh and Jennifer. I'd have to verify		Page 14		Page 16
2 A My - the - the attorneys I've been 3 working with. So I - they - they provided the 4 printout and the nice binder that it's in. 5 Q Okay. Did you, Doctor, make any notes 6 on the report that you have in front of you? 6 On the report that you have in front of you? 7 A No. 8 Q Okay. I'm gonna hand you what we have marked as Exhibit 1 to your deposition, which is 9 marked as Exhibit 1 to your deposition, which is 10 a notice of your deposition. 11 (DEPOSITION EXHIBIT NUMBER I 12 WAS MARKED FOR IDENTIFICATION.) 13 MS. BROWN: 14 Q And I'll ask, is this something that 15 you have ever seen before? 16 A Yes. 17 Q When did you see it? 18 A I'd have to review my email, but it was 19 some sometime ago, some weeks ago. 20 Q Okay. Have you brought any 21 And you understand that this Notice of 22 Deposition that we've marked as Exhibit 1 23 requests that you bring certain documents with 24 you here today? Page 15 1 A Yes. 2 Q Okay. 3 MS. O'DELL: 4 Let me just insert for the record, 5 we've objected to certain requests contained in 6 the notice, and objections have been served, and 7 materials have been brought to this deposition. 2 Q And you counsel for the plaintiffs 13 represented that some materials have been brought to the deposition. Do you have any materials 14 Well - 15 Wash own and those are copies. 2 O Okay. And was there any connection meaning did someone refer the plaintiffs' lawyers? 1 A I do not. 10 DEPOSITION EXHIBIT NUMBER 1 MS. DROWN: 2 A They are. 4 Deposition that to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and ask you once copy, so let me hand it to you and	1	Q Who who did?	1	Thank you.
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Page 15 Page 15 Page 15 Page 15 Page 15 A Yes. Q Okay. MS. O'DELL: Let me just insert for the record, we've objected to certain requests contained in the notice, and objections have been served, and materials have been brought to this deposition consistent with those objections. MS. BROWN: And we are in receipt of your And we are in receipt of your And we are in receipt of the plaintiffs Page 15 Page 15 Page 15 Page 15 A Yes. Q Okay. And Leigh and Jennifer. I'd have to verify only in my have heard from fit in my email whom I may have heard from fit in my have heard from fi	22		22	A Earlier in 2017.
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Page 15 A Yes. Q Okay. MS. O'DELL: Let me just insert for the record, we've objected to certain requests contained in the notice, and objections have been served, and materials have been brought to this deposition materials have been brought to this deposition MS. BROWN: MS. BROWN: And we are in receipt of your And we are in receipt of your Depute that sight? A That's right. A No. A I I did not know them. Depute the first contact was email. A I believe the first contact was email. A Well MS. O'DELL: MS. O'DELL: MS. O'DELL: Page 1 in my email whom I may have heard from first in missing have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in my email whom I may have heard from first in this litigation; is decunsed in the litigation; is definitely in the subject of a No. A No. A No. Depute the first contact was email. But, ultimately, yes. Depute the first contact was email. A I believe the first contact was email. A Well To you, or do you know? A I don't know. Page Table and Jenuifer are counsel for the plaintiffs' law yers found you? A I do not.	24		24	
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21 served, and and those are copies. 21 A I do not.		-		
44 IVIS. BROWN: 42 Q Okay. It looks like, Doctor, that				
				•
24 Q So, Doctor, let's start 24 Does that sound right to you?	24	Q 50, Doctor, ices state	44	Does that sound right to you?

5 (Pages 14 to 17)

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Shawn Levy, Ph.D.

1	Page 18		Page 20
1	A It does.	1	Your report in this case was served in
2	Q Looks like something's blacked out on	2	November of 2018; correct?
3	the second page of the invoices. Do you know	3	A Correct.
4	what that is?	4	Q Fair to say, then, that Exhibit 4,
5	MS. O'DELL:	5	which you saw for the first time in December of
6	I'll just say that redactions were made	6	2018, did not inform the opinions contained in
7	by counsel. They referenced the subject matter	7	your report?
8	of conversations between Dr. Levy and counsel,	8	A That's correct.
9	and those have been redacted because of work	9	Q Okay. Did the does Exhibit 4
10	product privilege.	10	contain any information regarding chronic
11	MS. BROWN:	11	inflammation as the proposed mechanism of ovarian
12	Okay.	12	cancer induced by talc?
13	Q Is it fair, Doctor, that you've spent a	13	A I don't believe it does. I'd have to
14	total of 33 hours forming your opinions in this	14	review take a look at it to be sure.
15	case?	15	MS. O'DELL:
16	A That's fair.	16	And if you need to look at it, I'm sure
17	Q Okay. Do you have any additional	17	counsel will hand it to you.
18	invoices that you plan to submit to the lawyers	18	MS. BROWN:
19	for the plaintiffs?	19	Q I'm handing you, Doctor
20	A Yes.	20	MS. O'DELL:
21	Q Okay. And can you ballpark for me how	21	Excuse me. If you need to look at it
22	much additional time you've spent since the last	22	to answer that question, you may.
23	entry here, which appears to be December 12th,	23	A To be sure I'm accurate in my answer,
24	2018?	24	I'd like to take a look at that.
Ì	Page 19		Page 21
1	A There's probably another not	1	MS. BROWN:
2	including this morning roughly 15 hours.	2	Q Sure. Sitting here
3	Okay. I'll hand you, Doctor, what we	3	Hold on.
4	have marked as Exhibit 4 to your deposition.	4	Sitting here today, you're not aware if
5	This is another document counsel for the	5	Exhibit 4 contains any information regarding the
6	plaintiffs just handed me.	6	proposed mechanism of chronic inflammation as a
7	(DEPOSITION EXHIBIT NUMBER 4	7	cause for ovarian cancer?
8	WAS MARKED FOR IDENTIFICATION.)	8	MS. O'DELL:
9	MS. BROWN:	9	Object to the question.
10	Q Would you identify that for the record,	10	If you need to see the document,
11	please.	11	Doctor, you may ask for it.
12	A This is a printed copy from a website	12	A Yeah. I'm not I'm not able to
13	from the government of Canada discussing their	13	answer it accurately without seeing the document.
14	draft screening assessment of talc.	14	(DEPOSITION EXHIBIT NUMBER 5
15	Q Okay. Is that something you've seen	15	WAS MARKED FOR IDENTIFICATION.)
)	before today?	16	MS. BROWN:
16	cerete today.		
	A Yes.	17	Q Okay. Handing you what we've marked as
16		17 18	Q Okay. Handing you what we've marked as Exhibit 5, would you tell me what that is,
16 17	A Yes.		
16 17 18	A Yes. Q When did you see it first?	18	Exhibit 5, would you tell me what that is,
16 17 18 19	A Yes.Q When did you see it first?A Sometime in December.	18 19	Exhibit 5, would you tell me what that is, Doctor?
16 17 18 19 20	 A Yes. Q When did you see it first? A Sometime in December. Q Did the lawyers for plaintiffs give it 	18 19 20	Exhibit 5, would you tell me what that is, Doctor? A This is another document from the government government of Canada discussing the
16 17 18 19 20 21	 A Yes. Q When did you see it first? A Sometime in December. Q Did the lawyers for plaintiffs give it to you? 	18 19 20 21	Exhibit 5, would you tell me what that is, Doctor? A This is another document from the

6 (Pages 18 to 21)

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Shawn Levy, Ph.D.

	Page 22		Page 24
1	know?	1	Q Does Exhibit 6 contain any information
2	MS. O'DELL:	2	regarding the proposed mechanism of chronic
3	Object to the form.	3	inflammation?
4	A Yeah. That I don't I don't have	4	A It does in reference, I believe. I'm
5	the information available to answer that	5	reminding myself if if it shared the same
6	accurately.	6	materials that I had referenced in my report.
7	MS. BROWN:	7	So, yes, it does.
8	Q Have you seen Exhibit 5 prior to this	8	Q Are you looking at a particular page,
9	morning?	9	Doctor?
10	A I have.	10	A I am.
11	Q When did you first see Exhibit 5?	11	Q And would you identify that for the
12	A Similar in time to the earlier report	12	record.
13	or this yes. Similar in time to the	13	A I'm looking at page 23, beginning at
14	earlier to the same document from Exhibit 4.	14	line 220.
15	Q To the best of your recollection,	15	Q And what information does Exhibit 6 at
16	Doctor, you first saw Exhibit 5 after completing	16	page 23 contain regarding chronic inflammation?
17	your report in this matter; is that right?	17	A It discusses inflammation of the
18	A That is right.	18	epithelial ovarian surfaces in animal models and
19	Q Fair to say, then, that Exhibit 5 did	19	provides two different references.
20	not inform the opinions contained in your MDL	20	Q And were those references information
21	report?	21	you considered in forming your opinions in this
22	A That's correct.	22	case?
23	Q Handing you, Doctor, what we've marked	23	A Let me make sure of that.
24	as Exhibit 6 to your deposition, another document	24	Yes.
	Page 23		Page 25
1	counsel provided, counsel for plaintiffs provided	1	Q And would you state what they are for
2	in response to your deposition notice.		
_		2	the record, please'?
3		3	the record, please? A One reference is T.C. Hamilton, et al.,
3	(DEPOSITION EXHIBIT NUMBER 6		A One reference is T.C. Hamilton, et al.,
		3	* *
4	(DEPOSITION EXHIBIT NUMBER 6 WAS MARKED FOR IDENTIFICATION.) MS. BROWN:	3 4	A One reference is T.C. Hamilton, et al., The British Journal of Experimental Pathology,
4 5	(DEPOSITION EXHIBIT NUMBER 6 WAS MARKED FOR IDENTIFICATION.) MS. BROWN:	3 4 5	A One reference is T.C. Hamilton, et al., The British Journal of Experimental Pathology, from 1984. And the other reference is "The
4 5 6 7	(DEPOSITION EXHIBIT NUMBER 6 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Would you identify for the record Exhibit 6?	3 4 5 6 7	A One reference is T.C. Hamilton, et al., The British Journal of Experimental Pathology, from 1984. And the other reference is "The Pathology of Ovarian" "The Pathology of
4 5 6 7 8	(DEPOSITION EXHIBIT NUMBER 6 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Would you identify for the record Exhibit 6? A So this is a draft manuscript or	3 4 5 6	A One reference is T.C. Hamilton, et al., The British Journal of Experimental Pathology, from 1984. And the other reference is "The Pathology of Ovarian" "The Pathology of Ovarian Cancer Precursors," which is a review of
4 5 6 7	(DEPOSITION EXHIBIT NUMBER 6 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Would you identify for the record Exhibit 6? A So this is a draft manuscript or preprint manuscript that's been submitted for	3 4 5 6 7 8	A One reference is T.C. Hamilton, et al., The British Journal of Experimental Pathology, from 1984. And the other reference is "The Pathology of Ovarian" "The Pathology of Ovarian Cancer Precursors," which is a review of R.E. Scully in the Journal of Cellular
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4 5 6 7 8 9 10 11	(DEPOSITION EXHIBIT NUMBER 6 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Would you identify for the record Exhibit 6? A So this is a draft manuscript or preprint manuscript that's been submitted for peer review discussing the systematic review and meta-analysis of the association between perineal use of talc and risk of ovarian cancer.	3 4 5 6 7 8 9 10 11 12	A One reference is T.C. Hamilton, et al., The British Journal of Experimental Pathology, from 1984. And the other reference is "The Pathology of Ovarian" "The Pathology of Ovarian Cancer Precursors," which is a review of R.E. Scully in the Journal of Cellular Biochemistry, and that is a supplement from 1995 The latter is not referenced in my report.
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Shawn Levy, Ph.D.

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1 00 MG OUDELL.				
20 MS. O'DELL: 20 with the federal rules.				
21 Object to the form. 21 MS. BROWN:		•		
22 You don't if you need to see the 22 Q Dr. Levy, my question to you was				
23 MS. BROWN: 23 whether the Hamilton paper, the findings of the				
24 Counsel 24 Hamilton paper show that chronic inflammation	24	Counsel	24	Hamilton paper show that chronic inflammation led

8 (Pages 26 to 29)

	Page 30		Page 32
1	to neoplastic changes. Do you recall that	1	Q The Hamilton article does not support
2	question?	2	the theory that chronic inflammation leads to
3	A I do recall the question.	3	neoplastic changes in the ovary. Fair?
4	Q Can you answer that question without	4	MS. O'DELL:
5	looking at the paper?	5	Object to the form.
6	A I would need to look at the paper to	6	A The Hamilton article looked at an
7	accurately answer your question.	7	interval of one month, eighteen months, in a rat
8	Q Absolutely. Do you have a copy on your	8	model. And, so, in the constraints of that
9	computer?	9	particular experimental design and given the
10	A I do.	10	state of the art of the technology at the time,
11	Q Okay. We'll mark it, so we're all on	11	the authors did not conclude of a significant
12	the same page, as Exhibit 7.	12	progression of ovarian cancer. But there's
13	(DEPOSITION EXHIBIT NUMBER 7	13	clearly limitations in both their experimental
14	WAS MARKED FOR IDENTIFICATION.)	14	design and time course of the study to draw wide
15	MS. BROWN:	15	conclusions.
16	Q Here's a hard copy, Doctor, if that	16	MS. BROWN:
17	assists you.	17	Q The conclusions of the Hamilton
18	Doctor, looking at the Hamilton article	18	article, Dr. Levy, do not support the hypothesis
19	that you have in front of you, does that refresh	19	that chronic inflammation from talcum powder
20	you that the authors found no association between	20	causes ovarian cancer. Would you agree?
21	the talc-induced changes and neoplasm?	21	A I would not.
22	A No. Their their conclusions were	22	Q The authors did not find that the
23	that the talc-induced changes specifically	23	inflammation seen in Hamilton led to neoplastic
24	fibrosis and the papillary changes did not	24	changes. True?
	Page 31		Page 33
			5
1	appear to be a reaction to talc, but they I	1	
1 2	appear to be a reaction to tale, but they I don't see the specific inclusion that you asked	1 2	A The authors did not report observing
	appear to be a reaction to tale, but they I don't see the specific inclusion that you asked in the question regarding neoplasm.		_
2	don't see the specific inclusion that you asked	2	A The authors did not report observing neoplastic change over the time course of the
2 3	don't see the specific inclusion that you asked in the question regarding neoplasm.	2 3	A The authors did not report observing neoplastic change over the time course of the given study.
2 3 4	don't see the specific inclusion that you asked in the question regarding neoplasm. Q I'm looking at page 103, Doctor, the	2 3 4	A The authors did not report observing neoplastic change over the time course of the given study. Q Doctor, I'm handing you the report that
2 3 4 5	don't see the specific inclusion that you asked in the question regarding neoplasm. Q I'm looking at page 103, Doctor, the first full paragraph that begins "no evidence."	2 3 4 5	A The authors did not report observing neoplastic change over the time course of the given study. Q Doctor, I'm handing you the report that you've served in this case, which we'll mark as
2 3 4 5 6	don't see the specific inclusion that you asked in the question regarding neoplasm. Q I'm looking at page 103, Doctor, the first full paragraph that begins "no evidence." You with me? A One moment. "No evidence of cellular,"	2 3 4 5 6	A The authors did not report observing neoplastic change over the time course of the given study. Q Doctor, I'm handing you the report that you've served in this case, which we'll mark as Exhibit 2.
2 3 4 5 6 7	don't see the specific inclusion that you asked in the question regarding neoplasm. Q I'm looking at page 103, Doctor, the first full paragraph that begins "no evidence." You with me?	2 3 4 5 6 7	A The authors did not report observing neoplastic change over the time course of the given study. Q Doctor, I'm handing you the report that you've served in this case, which we'll mark as Exhibit 2. (DEPOSITION EXHIBIT NUMBER 2
2 3 4 5 6 7 8	don't see the specific inclusion that you asked in the question regarding neoplasm. Q I'm looking at page 103, Doctor, the first full paragraph that begins "no evidence." You with me? A One moment. "No evidence of cellular," that paragraph?	2 3 4 5 6 7 8	A The authors did not report observing neoplastic change over the time course of the given study. Q Doctor, I'm handing you the report that you've served in this case, which we'll mark as Exhibit 2. (DEPOSITION EXHIBIT NUMBER 2 WAS MARKED FOR IDENTIFICATION.)
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Shawn Levy, Ph.D.

	Page 34		Page 36
1	sentence of that paragraph in your report reads,	1	hypothesis that chronic inflammation leads to
2	"Additional studies have also shown the effects	2	cancer in animals. Right?
3	of talc on the immune response."	3	A The
4	Do you see that sentence?	4	MS. O'DELL:
5	A I do.	5	Object to the form.
6	Q And you cite the Hamilton article for	6	A The those two references were not
7	that proposition that we were just reviewing?	7	included in the report to provide the opinion or
8	A Uh-huh.	8	conclusions that you just described.
9	Q True?	9	MS. BROWN:
10	A True.	10	Q Because you know, Doctor, that there's
11	Q And the talc effects on the immune	11	not a single animal study that shows that talc
12	response that were shown in Hamilton were not	12	causes changes in animals that leads to cancer;
13	effects that the authors observed led to	13	right?
14	neoplastic changes. Correct?	14	MS. O'DELL:
15	MS. O'DELL:	15	Object to the form.
16	Object to the form.	16	A Could you could you phrase that
17	A I'm sorry. I'm not sure I understand	17	question again? Sorry.
18	your question.	18	MS. BROWN:
19	MS. BROWN:	19	Q There is not a single animal study,
20	Q Sure.	20	Doctor, that supports the opinion that chronic
21	A Are you asking, if I could clarify, are	21	inflammation caused by talc causes ovarian
22	you are you asking if Hamilton is an	22	cancer. Is that correct?
23	appropriate reference for the effects of talc on	23	MS. O'DELL:
24	the immune response or are you asking if	24	Object to the form.
	Page 35		Page 37
1	Hamilton's an appropriate reference for something	1	A In my review of the literature, there
2	else?	2	are a number of animal studies that support the
3	Q In your report, you state that studies,	3	opinions in the report regarding the biological
4	such as Hamilton, have shown effects of talc on	4	plausibility of talc leading to or contributing
5	the immune response. Correct?	5	to neoplastic change.
6	A That is correct.	6	MS. BROWN:
7	Q And you said Hamilton as one of the	7	Q Are you aware of any animal studies,
8	articles that supports that proposition. True?	8	Doctor, that show talc causing chronic
9	A Of the immune response, that's true.	9	inflammation in animals that leads to neoplastic
10	Q Okay. The immune response that was	10	or cancerous changes in the animals?
11	observed in Hamilton was not an immune response	11	MS. O'DELL:
12	that led to cancer. Right?	12	Object to the form. Compound.
13	A As as I stated earlier, on the time	13	A There is one 1971 study that I'm aware
14	course of the Hamilton study, the authors did not	14	of. I would have to review to remember the
15	report specifically to neoplastic change in the	15	author. That was an earlier seminal or a
16	rat or conclude or make that conclusion, nor did	16	earlier study that described the role of talcum
17	they conclude that that was not a possibility	17	powder and the inflammatory change within the
18	either.	18	ovary.
19	Q And on page 14 of your report you have	19	MS. BROWN:
20	two additional cites for that proposition;	20	Q Who's the author of that study, Doctor?
21	correct?	21	A I'm trying to think of where I have
22	A Correct.	22	that reference.
	O A . 1 . 1	1 22	O Why don't wa mut that to the side and
23	Q And you know, Doctor, that neither of	23	Q Why don't we put that to the side and
23 24	those cites, Keskin or NTP, support the	24	at a break we'll see if we can find that article

10 (Pages 34 to 37)

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	Page 38		Page 40
1	and then we can take a look at it. Okay?	1	A And I have those on the available
2	A Uh-huh.	2	electronically.
3	Q Okay. Getting back, then, Doctor, to	3	Q Okay. Were you provided with completed
4	what we had marked as Exhibit 6, which is the	4	versions of all the plaintiff experts in the MDL
5	Taher paper, fair to say you reviewed that paper	5	proceeding?
6	after your report was submitted in this case?	6	A I can't speak to whether it was all,
7	A Yes.	7	but I have been provided with several.
8	Q Okay. And did you notice throughout	8	Q Will you list for me the expert reports
9	Taher's paper he makes reference to a number of	9	you've been provided with?
10	supplemental materials?	10	A Sure.
11	A Not specifically.	11	Q Thank you.
12	Q Are you in receipt from plaintiffs'	12	A There are four on on this drive,
13	counsel of those supplemental materials?	13	three I'm sorry. Two. Crowley and Longo.
14	A I'd have to you'd have to give me a	14	Q Two reports from Dr. Crowley and two
15	specific example, and I would be able to answer	15	reports from Dr. Longo?
16	you.	16	MS. O'DELL:
17	Q So, throughout the paper, the authors	17	I don't think that's what he said.
18	make reference to a set of supplemental materials	18	A No. I think there are two, two expert
19	that support their opinions. Do you recall that?	19	reports, one from Dr. Crowley and one from
20	A I certainly recall the reference	20	Dr. Longo.
21	materials to support their opinion. Whether they	21	MS. BROWN:
22	were supplemental or otherwise, that doesn't	22	Q Okay. And the date of the Crowley
23	stand out to me.	23	report, please?
24	Q Okay. And I'm not trying to be tricky.	24	A The according to the file, the
	Page 39		Page 41
1	I just want to know if you have those materials,	1	date the modified date is November 28, 2018.
2	and, if so, I'm gonna request production of them.	2	Q And
3	A No. I I I don't believe that I	3	A Whether that was the written date, I
4	have the full list of reference of literature	4	I don't know.
5	cited from that from this paper	5	Q And the Longo report, do you know the
6	Q Okay.	6	date of that?
7	A now	7	A It is listed as August 2nd, 2017, in
8	Q Now, Taher	8	the title. And then there's a sorry. There's
9	A but I'd have to check.	9	a second Longo report, 2018, which has a
10	Q Sorry.	10	November 28, 2018, date. So my my apologies.
11	The Taher paper did not inform your	11	To correct, there are two expert reports from
12	the opinions contained in your report dated	12	Dr. Longo.
13	November of 2018; correct?	13	Q Got it.
14	A Correct, as written.	14	MS. O'DELL:
	Q Okay. Are there any additional	15	So when you were talking about
15		1 1 6	MC DDOWNI
15 16	documents that either you or your counsel have	16	MS. BROWN:
	documents that either you or your counsel have brought with you here today in response to	17	Counsel, no. Huh-uh. No. We I'm
16			
16 17	brought with you here today in response to	17	Counsel, no. Huh-uh. No. We I'm
16 17 18	brought with you here today in response to Exhibit 1, the Notice of Deposition?	17 18	Counsel, no. Huh-uh. No. We I'm gonna ask questions, and he's gonna answer. We
16 17 18 19	brought with you here today in response to Exhibit 1, the Notice of Deposition? A So I'm not sure how to answer that	17 18 19	Counsel, no. Huh-uh. No. We I'm gonna ask questions, and he's gonna answer. We are not going to have you testify. You are not
16 17 18 19 20	brought with you here today in response to Exhibit 1, the Notice of Deposition? A So I'm not sure how to answer that accurately, but I would say there's a I've	17 18 19 20	Counsel, no. Huh-uh. No. We I'm gonna ask questions, and he's gonna answer. We are not going to have you testify. You are not to testify about the expert reports.
16 17 18 19 20 21	brought with you here today in response to Exhibit 1, the Notice of Deposition? A So I'm not sure how to answer that accurately, but I would say there's a I've been provided with since the completion of my	17 18 19 20 21	Counsel, no. Huh-uh. No. We I'm gonna ask questions, and he's gonna answer. We are not going to have you testify. You are not to testify about the expert reports. MS. O'DELL:

11 (Pages 38 to 41)

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Shawn Levy, Ph.D.

3 You can't testify. 4 MS. O'DELL: 5 He gave you the date of the file the 6 file date 7 MS. BROWN: 8 That's fine. 9 MS. O'DELL: 10 not the date 11 MS. BROWN: 12 On redirect, you are welcome to clean 13 up whatever you need to. But we're not gonna 14 have your testimony on the record about dates of 15 expert reports. 16 A So, looking at the report itself, the 17 date of the Longo report is November 14th, 2018. 18 MS. BROWN: 19 Q And were you provided 20 A The would you like the date of the 21 cartier report? 22 Q That would be terrific. 23 A It's August 2nd, 2017. 24 Q Great. Page 43 Were you provided the two Longo reports 2 and the Dr. Crowley report by plaintiffs' 3 counsel? 4 A Yes. 5 Q Do you recall when? 5 A Not specifically. It was, obviously, 7 by their date, sometime after their completion. 8 So the Crowley report and the later 2018 Longo 9 report were sometime in November of December 10 2018. 11 There's I've also had an opportunity 12 to review a number of several other expert 12 reports which are not with me today. 13 A I'd have to I could certainly I'd 14 A Ye to review a number of several other expert 15 report were quite close together, I don't if they overlapped or not. I'd have to review a provided it. I don't, off the top of my 17 the work or overlapped or not. I'd have to review the provide it. I don't, off the top of my 17 the work or overlapped or not. I'd have to review a provide it. I don't, off the top of my 18 A I'd have to provide it. I don't, off the top of my 19 A I'd have to provide it. I don't, off the top of my 19 A I'd have to review in high care in the report. 20 A The would you have a listing of the additional 21 Care in the post of the provided in the content in the report. 22 A I'd have to provided it. I don't, off the top of my 23 A I'd work or very apped or not. I'd have to review the provided in the content in the report. 21 A I'd have to provided it. I don't, off the top of my		Page 42		Page 44
3 You can't testify. 4 MS. O'DELL: 5 He gave you the date of the file the 6 file date 7 MS. BROWN: 8 That's fine. 9 MS. O'DELL: 10 not the date 11 MS. BROWN: 12 On redirect, you are welcome to clean 13 up whatever you need to. But we're not gonna 14 have your testimony on the record about dates of 15 expert reports. 16 A So, looking at the report itself, the 17 date of the Longo report is November 14th, 2018. 18 MS. BROWN: 19 Q And were you provided 20 A The would you like the date of the 21 earlier report? 22 Q That would be terrific. 23 A It's August 2nd, 2017. 24 Q Great. Page 43 Were you provided the two Longo reports 2 and the Dr. Crowley report by plaintiffs' 3 counsel? 4 A Yes. 5 Q Do you recall when? 5 A Not specifically. It was, obviously, 7 by their date, sometime after their completion. 8 So the Crowley report and the later 2018 Longo 9 report were sometime in November of December 10 2018. 11 There's I've also had an opportunity 12 to review a number of several other expert 12 reports which are not with me today. 13 report were quite close together, I don't, 14 A I'd have to I could certainly I'd 16 A I'd have to I could certainly I'd 16 A I'd have to provide it. I don't, off the top of my 3 or hard copy? 4 A Neither. They were made availab through a shared storage. Q And would you have received an alerting you to their existence on a shared through alertony to their existence on a shared torrough an alerting you to their existence on a shared torrough alertony to their existence or alertony or privilege. Dr. Levy, communication, the object to that and instruct you not to discommunications between counsel. MS. BROWN: 18 Docto	1	MS. BROWN:	1	MS. BROWN:
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have to provide it. I don't, off the top of my 17 the which references I used in here, v			l	
18 head, recall all of them. There was probably 18 will just take a moment.				
				•
11				
		•	l	two days prior to your report. Is that right?
23 Object to the form. 23 A Finalized, yes.				
				· ·
21 21 Thi not Thi not certain.	⊿ ∃	11 III not 1 III not certain.	-	Q Did you see a diant of Longo's 2018

12 (Pages 42 to 45)

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	Page 46		Page 48
1	report?	1	Q Did you type the expert report that
2	A Yes. And the	2	we've marked as Exhibit 2 yourself?
3	Q And did you	3	A I did.
4	A And as to when I saw the draft, I	4	Q Did you write all contents of Exhibit 2
5	believe it was and it was sometime in the fall	5	yourself?
6	and/or when reports were being revised and	6	A I did.
7	expanded as more literature became available.	7	Q Were there parts of your report that
8	Q Prior to Longo finalizing and signing	8	you lifted from other published articles?
9	his expert report in the MDL, you had access to a	9	MS. O'DELL:
10	draft of that report; is that right?	10	Object to the form.
11	MS. O'DELL:	11	A Could you describe "lifted"?
12	Object to the form.	12	MS. BROWN:
13	A I can't speak to to that accurately.	13	Q Did you take the words of other authors
14	MS. BROWN:	14	and put them in your expert report as Exhibit 2?
15	Q I thought you just testified you saw a	15	MS. O'DELL:
16	version of the Longo 2018 report that was not	16	Object to the form.
17	final. Is that correct?	17	A No. My my so my report is a
18	MS. O'DELL:	18	review of the available literature at the time
19	Object to the form.	19	that the report was being developed. So, as
20	A I'd have to I'd have to review	20	such, it describes that that literature.
21	my the the literature that I used for the	21	As far as did I specifically copy words
22	report to accurately answer your question.	22	from other reports, no.
23	MS. BROWN:	23	MS. BROWN:
24	Q Well, your report doesn't say a draft,	24	Q Did you work with another plaintiff
	Page 47		Page 49
1	and I'm wondering if you ever saw a non-finalized	1	expert on the report that we've marked as
2	copy of the Longo report.	2	Exhibit 2?
3	A I didn't have an opportunity to compare	3	A I did not.
4	the finalized Longo report to a what may be a	4	Q Do you know who Dr. Zelikoff is?
5	draft or not to accurately answer your question	5	A The name's not familiar to me.
6	if I saw a draft that was substantially different	6	Q Did you review a draft of
7	than what's referenced as the final.	7	Dr. Zelikoff's report before submitting your own?
8	Q There were two days between Longo	8	A I did not.
9	serving his report and you serving your report.	9	Q Do you think that
10	Does that help orient you as to whether you saw a	10	A Not that I'm aware of.
11	draft or you saw the final version?	11	Q Do you have any explanation as to why a
12	A Certainly possible I saw the final	12	paragraph in your report is the same as a
13	version.	13	paragraph in Dr. Zelikoff's report?
14	Q How many hours did you spend on your	14	MS. O'DELL:
15	report in this case, Doctor?	15	Object to the form.
16	A The initial draft of the report? The	16	A I without knowing without seeing
17	initial writing of the report?	17	the paragraph in both reports would be I can't
18	Q In total, how many hours did you spend	18	comment.
19	writing your report?	19	MS. BROWN:
20	A It was 20 hours initially, and then it	20	Q Let's mark as Exhibit 8 the expert
	•	. 01	report of Dr. Judith Zelikoff, Ph.D.
21	would be it would be difficult to provide an	21	=
21 22	would be it would be difficult to provide an accurate answer for the rest of that. I would	22	(DEPOSITION EXHIBIT NUMBER 8
21 22 23	would be it would be difficult to provide an accurate answer for the rest of that. I would say an additional few hours that I counted as	22 23	(DEPOSITION EXHIBIT NUMBER 8 WAS MARKED FOR IDENTIFICATION.)
21 22	would be it would be difficult to provide an accurate answer for the rest of that. I would	22	(DEPOSITION EXHIBIT NUMBER 8

13 (Pages 46 to 49)

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Shawn Levy, Ph.D.

	Page 50		Page 52
1	Q Is this something you've seen	1	A They are
2	Oh, sorry. Can I	2	Q The next sentence
3	It's okay, actually. It will flag it	3	A Just one moment, please. I'm just
4	for you?	4	making sure. Your question was are they exactly
5	Is this a report that you've seen	5	the same, and I'm just confirming if they're
6	before, Doctor?	6	exactly the same.
7	A I'll have to see it before I answer.	7	So, yes, I agree they're exactly the
8	Q I'm handing you what we've marked as	8	same.
9	Exhibit 8, which is the expert report of	9	Q You have reviewed them and satisfied
10	Dr. Judith Zelikoff. Is this one of the reports	10	yourself that that those two sentences are
11	that you reviewed prior you reviewed at all?	11	exactly the same; correct?
12	A I would have I would actually have	12	MS. O'DELL:
13	to review my the literature that I reviewed	13	Object to the form.
14	in the totality of the literature that I	14	A There's a single sentence in each
15	reviewed, which I could answer that after a	15	report that is exactly the same. But important
16	break, if necessary. But I don't recall,	16	to comment that this single sentence is a is a
17	specifically recall, this report under	17	basic biological premise of cancer, and, so,
18	Dr. Zelikoff's name. But it is certainly	18	there's no surprise that two expert witnesses
19	possible that I may have seen	19	offering opinions on the role of or the
20	Q Let's look at page 5 of your report,	20	biological plausibility or mechanisms of
21	Doctor.	21	development of cancer would introduce a
22	A Okay.	22	fundamental premise in the same manner.
23	Q And why don't you put that side by side	23	MS. BROWN:
24	with page 20 of Dr. Zelikoff's report. And the	24	Q No surprise that you experts would have
			Page 53
1		,	
1 2	paragraph in Dr. Zelikoff's report that I want to direct you to is the first full paragraph on	1	one sentence that's the same? Is that what
3	page 20 that begins "Genetic mutations."	2	you're saying? MS. O'DELL:
4	Do you see that?	3 4	Objection. That's not what he said.
5	A I do.	5	Misrepresents his testimony.
6	Q And the paragraph of your report I want	6	A I'm saying that both would both
7	to direct you to is the paragraph on page 5 that	7	reports detail a fundamental aspect as they
8	begins "Both inherited."	8	would based on the current understanding of
9	Do you see that?	9	the that both inherited and acquired gene
10	A I do.	10	mutations work in concert to cause cancer.
11	Q Okay. The first sentence of that	11	MS. BROWN:
12	paragraph in your report reads, "Both inherited	12	Q Look at the next sentence on page 20 of
13	and acquired gene and acquired gene mutations	13	Dr. Zelikoff's report. It reads as follows:
14	work together to cause cancer."	14	"Even if one has inherited a genetic mutation
15	Do you see that?	15	that predisposes one to cancer," comma, "that
16	A I do.	16	doesn't mean he or she is certain to get cancer."
17	Q The third sentence of the paragraph I	17	Did I read that correctly?
18	directed you to in Dr. Zelikoff's report is	18	A You did.
19	identical and reads, "Both inherited and acquired	19	Q And let's go back to page 5 of your
20	gene mutations work together to cause cancer."	20	report. Skip ahead, if you would one, two,
21	Do you see that?	21	three four sentences to where you were and
22	A I do.	22	find the sentence that begins "Even."
23	Q Those two sentences are exactly the	23	Are you with me?
24	same, are they not?	24	A I am.
1	, • •• ,••		1 4111,

14 (Pages 50 to 53)

Case 3:16-md-02738-MAS-RLS Document 9733-20 Filed 05/07/19 Page 16 of 100 PageID: 35845

Shawn Levy, Ph.D.

	Page 54		Page 56
1	Q And your report at page 5 reads, "Even	1	identical to your report; correct?
2	if one has inherited a genetic mutation that	2	A We have.
3	predisposes one to cancer," comma, "that doesn't	3	Q Do you have any explanation for why
4	mean he or she is certain to get cancer."	4	that would be?
5	Did I read that correctly?	5	A I do.
6	A You did.	6	Q What's that?
7	Q That's the exact same sentence we just	7	A That these each of these sentences
8	read in Dr. Zelikoff's report; correct?	8	are describing basic introductory information
9	A It is.	9	around the relationship between cancer and
10	Q So now we have two sentences that are	10	genetic mutation.
11	exactly the same in your report and	11	Q And each of you described it with the
12	Dr. Zelikoff's report. Correct?	12	exact same words?
13	MS. O'DELL:	13	A Apparently so.
14	Object to the form.	14	Q Let's keep going.
15	A You have two sentences that are written	15	Page 20 of Dr. Zelikoff's report,
16	the same but certainly not in precisely the same	16	picking up where we left off, Dr. Zelikoff
17	context or organization in the total report.	17	writes: "The inherited gene mutation could
18	MS. BROWN:	18	instead make one more likely to develop cancer
19	Q We have two sentences that are	19	when exposed to certain cancer-causing
20	word-for-word identical in two of the plaintiffs'	20	substances."
21	expert reports in this litigation. Is that fair?	21	Do you see that?
22	MS. O'DELL:	22	A I do.
23	Objection. Asked and answered.	23	Q And let's go back to where we were in
24	A So reading your earlier question, you	24	your report, on page 5. "The inherited gene
	Page 55		Page 57
1	asked, "Is that the same exact sentence we just	1	mutation could instead make one more likely to
2	read in Dr. Zelikoff's report; correct?" And my	2	develop cancer when exposed to a certain
	* * * * * * * * * * * * * * * * * * * *		
3	answer was "It is." And it remains the same.	3	cancer-causing substance."
3 4	answer was "It is." And it remains the same. Q Let's keep going.	3 4	cancer-causing substance." Do you see that?
	Q Let's keep going.		cancer-causing substance." Do you see that? A I do.
4		4	Do you see that?
4 5	Q Let's keep going. Next sentence, at page 20 in	4 5	Do you see that? A I do.
4 5 6	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows:	4 5 6	Do you see that? A I do. Q And other than the tense in that last
4 5 6 7	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene	4 5 6 7	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct?
4 5 6 7 8	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer."	4 5 6 7 8	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar
4 5 6 7 8 9	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly?	4 5 6 7 8 9	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an
4 5 6 7 8 9	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did.	4 5 6 7 8 9	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them.
4 5 6 7 8 9 10	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me	4 5 6 7 8 9 10	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are
4 5 6 7 8 9 10 11	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And	4 5 6 7 8 9 10 11	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on
4 5 6 7 8 9 10 11 12 13	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more	4 5 6 7 8 9 10 11 12 13	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert
4 5 6 7 8 9 10 11 12 13 14	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause	4 5 6 7 8 9 10 11 12 13 14	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a
4 5 6 7 8 9 10 11 12 13 14 15	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Correct?	4 5 6 7 8 9 10 11 12 13 14 15	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a similar fashion.
4 5 6 7 8 9 10 11 12 13 14 15	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Correct? A Correct.	4 5 6 7 8 9 10 11 12 13 14 15	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a similar fashion. Q It doesn't strike you as odd that four
4 5 6 7 8 9 10 11 12 13 14 15 16	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Correct? A Correct. Q That is the identical sentence from	4 5 6 7 8 9 10 11 12 13 14 15 16	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a similar fashion. Q It doesn't strike you as odd that four sentences are identical from two expert reports?
4 5 6 7 8 9 10 11 12 13 14 15 16 17	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Correct? A Correct. Q That is the identical sentence from Dr. Zelikoff's report. Correct?	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a similar fashion. Q It doesn't strike you as odd that four sentences are identical from two expert reports? MS. O'DELL:
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Correct? A Correct. Q That is the identical sentence from Dr. Zelikoff's report. Correct? A Starting with "Rather, one or more	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a similar fashion. Q It doesn't strike you as odd that four sentences are identical from two expert reports? MS. O'DELL: Object to the form.
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Correct? A Correct. Q That is the identical sentence from Dr. Zelikoff's report. Correct? A Starting with "Rather, one or more additional gene mutations may be needed to cause	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a similar fashion. Q It doesn't strike you as odd that four sentences are identical from two expert reports? MS. O'DELL: Object to the form. A Four sentences are not identical.
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Correct? A Correct. Q That is the identical sentence from Dr. Zelikoff's report. Correct? A Starting with "Rather, one or more additional gene mutations may be needed to cause cancer."	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a similar fashion. Q It doesn't strike you as odd that four sentences are identical from two expert reports? MS. O'DELL: Object to the form. A Four sentences are not identical. MS. BROWN:
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q Let's keep going. Next sentence, at page 20 in Dr. Zelikoff's report, states as follows: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Did I read that correctly? A You did. Q Let's go back to page 4 excuse me page 5 of your report where we just were. And you write: "Rather," comma, "one or more additional gene mutations may be needed to cause cancer." Correct? A Correct. Q That is the identical sentence from Dr. Zelikoff's report. Correct? A Starting with "Rather, one or more additional gene mutations may be needed to cause cancer." Yes, correct.	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Do you see that? A I do. Q And other than the tense in that last sentence, they, too, are identical. Correct? A So they're they're certainly similar sentences, but that I believe the tense is an important difference between them. Again, as I stated, that these are introductory and fundamental perspectives on cancer and that, in this case, two expert witnesses have summarized those things in a similar fashion. Q It doesn't strike you as odd that four sentences are identical from two expert reports? MS. O'DELL: Object to the form. A Four sentences are not identical. MS. BROWN: Q There's one small change in a tense.

15 (Pages 54 to 57)

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	Page 58		Page 60
1	Object to the form.	1	Q next to your report, which remains
2	A There there are there are three	2	Exhibit 2. And I will direct you to the second
3	sentences which are, when considered	3	page of the Mayo Clinic printout, the section
4	individually, they are the same words. When you	4	titled "Causes."
5	consider the now the group of those four	5	Are you with me?
6	sentences together between the two reports, they	6	A Second page.
7	are clearly different organization with	7	Q Double-sided. Flip it over.
8	significantly more information between those	8	A Yes.
9	identical sentences in one or the other.	9	Q Okay. And I'll direct you to page 3 of
10	So the suggestion that they were one	10	your report entitled "The Role of Gene Mutations
11	report was copied into the other, I would say it	11	in the Development of Cancer."
12	is equally interesting that they are more	12	A Uh-huh.
13	different than they are alike, other than the	13	Q Starting with Exhibit 9, the Mayo
14	wording of three sentences.	14	Clinic website, under a section entitled
15	MS. BROWN:	15	"Causes," the Mayo Clinic writes, "Cancer is
16	Q Did someone other than you write the	16	caused by changes" parentheses
17	sentences we've just been looking at in your	17	"(mutations) to the DNA within cells."
18	report?	18	Do you see that?
19	A No.	19	A I do.
20	Q Did you consult the Mayo Clinic's	20	Q And, looking at page 3 of your report,
21	website in connection with writing your report?	21	Doctor, that same sentence or sentence fragment
22	A I don't believe so.	22	appears in the first sentence: "Cancer is caused
23	Q Do you consider the Mayo Clinic's	23	by changes" parentheses "(mutations) to the
24	website to be authoritative an authoritative	24	DNA within cells."
1	Page 59 source, in your view?	1	Page 61 Correct?
2	MS. O'DELL:	2	MS. O'DELL:
3	Object to the form.	3	Object to the form.
4	A I have no basis for that opinion. I	4	A Say your question again. Are you
5	I haven't reviewed the Move Clinia website to		
	I haven't reviewed the Mayo Clinic website to	5	asking
6	determine that.	5 6	asking MS. BROWN:
6	determine that.	6	MS. BROWN:
6 7	determine that. (DEPOSITION EXHIBIT NUMBER 9	6 7	MS. BROWN: Q It's the same; right, Doctor?
6 7 8	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked	6 7 8	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that
6 7 8 9	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a	6 7 8 9	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both
6 7 8 9 10	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked	6 7 8 9 10	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of
6 7 8 9 10 11	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a	6 7 8 9 10 11	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description.
6 7 8 9 10 11	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh.	6 7 8 9 10 11 12	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN:
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6 7 8 9 10 11 12 13	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh. Q I'll hand it to you. And let me know if this is something that you've ever seen	6 7 8 9 10 11 12 13 14 15	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN: Q Let's go to the second sentence in the Mayo Clinic website, which reads, "The DNA inside
6 7 8 9 10 11 12 13 14 15 16 17	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh. Q I'll hand it to you. And let me know if this is something that you've ever seen before.	6 7 8 9 10 11 12 13 14 15 16	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN: Q Let's go to the second sentence in the Mayo Clinic website, which reads, "The DNA inside a cell is packaged into a large number of
6 7 8 9 10 11 12 13 14 15 16 17	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh. Q I'll hand it to you. And let me know if this is something that you've ever seen before. A Not that I recall.	6 7 8 9 10 11 12 13 14 15 16 17	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN: Q Let's go to the second sentence in the Mayo Clinic website, which reads, "The DNA inside a cell is packaged into a large number of individual genes, each of which contains a set of
6 7 8 9 10 11 12 13 14 15 16 17 18	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh. Q I'll hand it to you. And let me know if this is something that you've ever seen before. A Not that I recall. Q Did you take any language from the Mayo	6 7 8 9 10 11 12 13 14 15 16 17 18	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN: Q Let's go to the second sentence in the Mayo Clinic website, which reads, "The DNA inside a cell is packaged into a large number of individual genes, each of which contains a set of instructions telling the cell what functions to
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh. Q I'll hand it to you. And let me know if this is something that you've ever seen before. A Not that I recall. Q Did you take any language from the Mayo Clinic website to use in your report?	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN: Q Let's go to the second sentence in the Mayo Clinic website, which reads, "The DNA inside a cell is packaged into a large number of individual genes, each of which contains a set of instructions telling the cell what functions to perform," comma, "as well as how to grow and
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh. Q I'll hand it to you. And let me know if this is something that you've ever seen before. A Not that I recall. Q Did you take any language from the Mayo Clinic website to use in your report? A No.	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN: Q Let's go to the second sentence in the Mayo Clinic website, which reads, "The DNA inside a cell is packaged into a large number of individual genes, each of which contains a set of instructions telling the cell what functions to perform," comma, "as well as how to grow and divide."
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh. Q I'll hand it to you. And let me know if this is something that you've ever seen before. A Not that I recall. Q Did you take any language from the Mayo Clinic website to use in your report? A No. Q Let's take a I want you to put the	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN: Q Let's go to the second sentence in the Mayo Clinic website, which reads, "The DNA inside a cell is packaged into a large number of individual genes, each of which contains a set of instructions telling the cell what functions to perform," comma, "as well as how to grow and divide." Do you see that?
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	determine that. (DEPOSITION EXHIBIT NUMBER 9 WAS MARKED FOR IDENTIFICATION.) MS. BROWN: Q Handing you, Doctor, what we've marked as Exhibit 9 to your deposition, which is a printout from the Mayo Clinic website entitled "Cancer." A Uh-huh. Q I'll hand it to you. And let me know if this is something that you've ever seen before. A Not that I recall. Q Did you take any language from the Mayo Clinic website to use in your report? A No.	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	MS. BROWN: Q It's the same; right, Doctor? MS. O'DELL: Object to the form. A There are eight words or ten words that are the same in this first sentence, again, both describing some of the fundamental premise of cancer and its in its description. MS. BROWN: Q Let's go to the second sentence in the Mayo Clinic website, which reads, "The DNA inside a cell is packaged into a large number of individual genes, each of which contains a set of instructions telling the cell what functions to perform," comma, "as well as how to grow and divide."

16 (Pages 58 to 61)

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	Page 62		Page 64
1	sentence appears in your report at page 3 where	1	subparagraph titled "Loss of DNA Repair."
2	you state, "The DNA that makes up our genetic	2	Are you with me?
3	code is organized into a large number of	3	A Yes.
4	individual genes, each of which contains a	4	Q I'm gonna read you two sentences from
5	specific subset of instructions telling the cell	5	the Mayo Clinic. Tell me if I read them
6	what functions to perform," comma, "as well as	6	correctly.
7	how to grow and divide."	7	"DNA repair genes look for errors in a
8	Do you see that?	8	cell's DNA and make corrections. A mutation in a
9	A I do.	9	DNA repair gene may mean that other errors aren't
10	Q Do you notice that nearly all the words	10	corrected, leading cells to become cancerous."
11	are the same as the Mayo Clinic's?	11	Do you see those two sentences, Doctor?
12	MS. O'DELL:	12	A I do.
13	Objection to form.	13	Q Those are two sentences written by the
14	A I, again we we have another	14	folks who produce the Mayo Clinic's website;
15	example of similar language describing	15	correct?
16	introductory and fundamental aspects surrounding	16	A I I have no knowledge of who wrote
17	the basics of cancer biology.	17	that.
18	MS. BROWN:	18	Q The same two sentences appear in your
19	Q Back to the Mayo Clinic next sentence.	19	report on page 4. Quote: "DNA repair genes look
20	Quote: "Errors in the instructions can cause the	20	for errors in a cell's DNA and make corrections.
21	cell to stop its normal function and may allow a	21	A mutation in a DNA repair gene may mean that
22	cell to become cancerous."	22	other errors aren't corrected, leading cells to
23	Do you see that?	23	become cancerous."
24	A I do.	24	Do you see that?
	Page 63		Page 65
1	Q Back to your report at page 3. An	1	A I do.
2	identical sentence: "Errors in the instruction	2	Q Those two sentences are identical in
3	can cause the cell to stop its normal function	3	the Mayo Clinic's website and your report. True?
4	and may allow a cell to become cancerous."	4	MS. O'DELL:
5	Do you see that?	5	Object to the form.
6	A I do.	6	A Again, we have fund basic
7	Q Does that strike you as strange?	7	information that provides an introductory
8	MS. O'DELL:	8	description of the basics of cancer which is used
9	Object to the form.	9	as as an inform informatory foundation for
10	A Strange in what way?	10	latter opinions in the report but is not germane
			· · · · · · · · · · · · · · · · · · ·
11	MS. BROWN:	11	to the to the opinion in my report.
11 12	MS. BROWN: Q That your expert report in this	11 12	to the to the opinion in my report. And, again, as stated before, that
11 12 13	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the	11 12 13	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer
11 12 13 14	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website.	11 12 13 14	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things
11 12 13 14 15	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL:	11 12 13 14 15	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language
11 12 13 14 15	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL: Objection. Misstates the report.	11 12 13 14 15 16	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language are are similar or even identical, again, does
11 12 13 14 15 16 17	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL: Objection. Misstates the report. A I I don't find it surprising in the	11 12 13 14 15 16 17	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language are are similar or even identical, again, does not surprise me.
11 12 13 14 15 16 17 18	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL: Objection. Misstates the report. A I I don't find it surprising in the least.	11 12 13 14 15 16 17 18	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language are are similar or even identical, again, does not surprise me. MS. BROWN:
11 12 13 14 15 16 17 18	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL: Objection. Misstates the report. A I I don't find it surprising in the least. MS. BROWN:	11 12 13 14 15 16 17 18 19	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language are are similar or even identical, again, does not surprise me. MS. BROWN: Q We read at least four sentences that
11 12 13 14 15 16 17 18 19 20	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL: Objection. Misstates the report. A I I don't find it surprising in the least. MS. BROWN: Q Let's turn to page 4 of your report,	11 12 13 14 15 16 17 18 19 20	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language are are similar or even identical, again, does not surprise me. MS. BROWN: Q We read at least four sentences that are identical to the Mayo Clinic. Would you
11 12 13 14 15 16 17 18 19 20 21	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL: Objection. Misstates the report. A I I don't find it surprising in the least. MS. BROWN: Q Let's turn to page 4 of your report, please. And I'll direct you to the final bullet	11 12 13 14 15 16 17 18 19 20 21	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language are are similar or even identical, again, does not surprise me. MS. BROWN: Q We read at least four sentences that are identical to the Mayo Clinic. Would you agree?
11 12 13 14 15 16 17 18 19 20 21 22	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL: Objection. Misstates the report. A I I don't find it surprising in the least. MS. BROWN: Q Let's turn to page 4 of your report, please. And I'll direct you to the final bullet on the same page of the Mayo Clinic website you	11 12 13 14 15 16 17 18 19 20 21 22	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language are are similar or even identical, again, does not surprise me. MS. BROWN: Q We read at least four sentences that are identical to the Mayo Clinic. Would you agree? MS. O'DELL:
11 12 13 14 15 16 17 18 19 20 21	MS. BROWN: Q That your expert report in this litigation contains identical sentences to the Mayo Clinic's website. MS. O'DELL: Objection. Misstates the report. A I I don't find it surprising in the least. MS. BROWN: Q Let's turn to page 4 of your report, please. And I'll direct you to the final bullet	11 12 13 14 15 16 17 18 19 20 21	to the to the opinion in my report. And, again, as stated before, that succinct fundamental information regarding cancer biology in two sources that state things succinctly and clearly in layman's language are are similar or even identical, again, does not surprise me. MS. BROWN: Q We read at least four sentences that are identical to the Mayo Clinic. Would you agree?

17 (Pages 62 to 65)

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Shawn Levy, Ph.D.

	Page 66		Page 68
1	MS. BROWN:	1	from our conversation to comment on those.
2	Counsel, form.	2	MS. BROWN:
3	A There are some similar there are	3	Q You have it right in front of you. We
4	some similarly stated sentences that	4	just looked at them.
5	you're that you've taken out of context in	5	A We did.
6	both cases to find them identical. So I I	6	Q Right?
7	agree that they're identical, but, again,	7	A Yes.
8	don't don't necessarily am surprised since I	8	Q You recall reading a number of
9	have no knowledge of where the information from	9	sentences in the Mayo Clinic website that match
10	the Mayo website was taken from.	10	word for word a number of sentences in your
11	MS. BROWN:	11	report. True?
12	Q You agree a number of sentences in your	12	MS. O'DELL:
13	report are identical to a number of sentences on	13	Object to the form.
14	the Mayo Clinic's website. True?	14	A We've we've read information that
15	MS. O'DELL:	15	is that is similar between the two documents.
16	Object to the form.	16	And, as answered, given the, again, basic
17	A No. I agree that they're I don't	17	fundamental introduction in lay language for
18	agree. There are specific wordings that are the	18	these concepts, it is no surprise that it's the
19	same.	19	same.
20	MS. BROWN:	20	MS. BROWN:
21	Q Doctor, do you not agree that a number	21	Q You're not surprised to find identical
22	of the sentences we just read are identical to a	22	sentences in your report and Dr. Zelikoff's
23	number of sentences that appear on the Mayo	23	report?
24	Clinic's website?	24	A I'm not surprised.
	Page 67		Page 69
1	MS. O'DELL:	1	MS. O'DELL:
2	Object to the form.	2	Object to the form.
3	A I think we've we've specifically	3	MS. BROWN:
4	gone over those individually and answered those	4	Q You are not surprised to find identical
5	questions.	5	sentences in your report and the Mayo Clinic?
6	MS. BROWN:	6	MS. O'DELL:
7	Q And you'll agree the sentences are	7	Objection to form. Asked and answered.
8	identical?	8	A No. I I've answered that.
9	MS. O'DELL:	9	MS. BROWN:
10	Object to the form.	10	Q You need to answer it again.
11	A Again, I I've answered I've	11	Are you
12	answered those when we went through them	12	A I'm not surprised.
13	individually.	13	Q surprised?
14	MS. BROWN:	14	Did you consult Wikipedia in writing
15	Q Well, I want you to answer my question	15	your expert report?
16	now.	16	A I don't recall.
17	You'll agree we've looked at a number	17	Q Do you think it's possible you might
18	of sentences that are identical in your report to	18	have looked at Wikipedia when writing your expert
19	the information on the Mayo Clinic's website;	19	report in this litigation?
20	correct?	20	A I've I've looked I've looked at a
ī	MS. O'DELL:	21	large number of sources in published literature
21			1 4
22	Object to the form. Misstates his	22	and others.
	Object to the form. Misstates his testimony.	22 23	and others. Q Did one of those sources include Wikipedia?

18 (Pages 66 to 69)

Shawn Levy, Ph.D.

	Page 70		Page 72
1	A I don't recall.	1	And we'll mark a Wikipedia page as
2	Q Do you consider Wikipedia to be a	2	Exhibit 10.
3	scientifically reliable source?	3	(DEPOSITION EXHIBIT NUMBER 10
4	A What do you mean by scientifically	4	WAS MARKED FOR IDENTIFICATION.)
5	reliable.	5	MS. BROWN:
6	Q Do you understand the concept of	6	Q I would like to direct you, Dr. Levy,
7	scientific reliability when answering a	7	to the first full paragraph in your expert report
8	scientific question?	8	at page 7.
9	MS. O'DELL:	9	A Uh-huh.
10	Object to the form.	10	Q Do you see that?
11	A Again, you'd have to that's you'd	11	A I do.
12	have to explain your what scientific	12	Q And I want to direct your attention to
13	reliability means in the context of your	13	the sentence in the middle of that paragraph that
14	question.	14	begins "BRCA1 combined."
15	MS. BROWN:	15	Do you see that?
16	Q What does it mean to you?	16	A Yes.
17	A Scientific reliability? In general	17	MS. BROWN:
18	terms, it would mean information that comes from	18	Q And I want to, side by side with
19	a peer-reviewed source.	19	Wikipedia, direct your attention to the third
20	Q And Wikipedia is not peer-reviewed;	20	full paragraph that begins, as well, "BRCA1
21	correct?	21	combined."
22	A Wikipedia generally reso uses	22	You with me?
23	a is a summary of commonly at least in	23	A I am.
24	scientific terms, a number of peer-reviewed	24	Q Wikipedia writes, "BRCA1 combines with
	Page 71		Page 73
1	sources, but it is	1	other tumor suppressors, DNA damage sensors, and
2	So from a true peer-review perspective,	2	single transducers to form a large multi-subunit
3	Wikipedia actually is peer-reviewed in the sense	3	protein complex known as BRCA1-associated genome
4	that anyone can contribute and edit the	4	surveillance complex" parens
5	information in Wikipedia.	5	"BAC-" excuse me "(BASC)," end parens.
6	Q Including our kids; right?		
		6	Do you see that?
7	MS. O'DELL:	6 7	
8	MS. O'DELL: Object to the form.	7 8	Do you see that? A I do. Q Turning to your report, page 7, you
8 9	MS. O'DELL: Object to the form. A Possible.	7 8 9	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor
8 9 10	MS. O'DELL: Object to the form. A Possible. MS. BROWN:	7 8 9 10	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and
8 9	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a	7 8 9 10 11	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit
8 9 10	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True?	7 8 9 10 11 12	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated
8 9 10 11	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so.	7 8 9 10 11 12 13	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens
8 9 10 11 12 13 14	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that	7 8 9 10 11 12 13 14	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)."
8 9 10 11 12 13 14 15	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource	7 8 9 10 11 12 13 14 15	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct?
8 9 10 11 12 13 14 15	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource when answering a scientific question?	7 8 9 10 11 12 13 14 15	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct? A That is correct.
8 9 10 11 12 13 14 15 16 17	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource when answering a scientific question? A No, that is not my testimony. That is	7 8 9 10 11 12 13 14 15 16	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct? A That is correct. Q Those two sentences, Doctor, are
8 9 10 11 12 13 14 15	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource when answering a scientific question? A No, that is not my testimony. That is not my testimony, no.	7 8 9 10 11 12 13 14 15	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct? A That is correct.
8 9 10 11 12 13 14 15 16 17	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource when answering a scientific question? A No, that is not my testimony. That is not my testimony, no. Q Do you do you think you used	7 8 9 10 11 12 13 14 15 16	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct? A That is correct. Q Those two sentences, Doctor, are
8 9 10 11 12 13 14 15 16 17	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource when answering a scientific question? A No, that is not my testimony. That is not my testimony, no.	7 8 9 10 11 12 13 14 15 16 17	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct? A That is correct. Q Those two sentences, Doctor, are identical. A It appears so, yes. Q Okay.
8 9 10 11 12 13 14 15 16 17 18	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource when answering a scientific question? A No, that is not my testimony. That is not my testimony, no. Q Do you do you think you used	7 8 9 10 11 12 13 14 15 16 17 18	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct? A That is correct. Q Those two sentences, Doctor, are identical. A It appears so, yes. Q Okay. A Except for a the reference included
8 9 10 11 12 13 14 15 16 17 18 19 20	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource when answering a scientific question? A No, that is not my testimony. That is not my testimony, no. Q Do you do you think you used Wikipedia here in writing your report? A Again, I I I don't recall using Wikipedia specifically.	7 8 9 10 11 12 13 14 15 16 17 18 19 20	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct? A That is correct. Q Those two sentences, Doctor, are identical. A It appears so, yes. Q Okay.
8 9 10 11 12 13 14 15 16 17 18 19 20 21	MS. O'DELL: Object to the form. A Possible. MS. BROWN: Q Anyone in the world could edit a Wikipedia page. True? A I believe so. Q Is it your testimony, Doctor, that information from Wikipedia is a reliable resource when answering a scientific question? A No, that is not my testimony. That is not my testimony, no. Q Do you do you think you used Wikipedia here in writing your report? A Again, I I I don't recall using	7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Do you see that? A I do. Q Turning to your report, page 7, you write, "BRCA1 combines with other tumor suppressors," comma, "DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex" parens (BASC)." Correct? A That is correct. Q Those two sentences, Doctor, are identical. A It appears so, yes. Q Okay. A Except for a the reference included

19 (Pages 70 to 73)

Shawn Levy, Ph.D.

	Page 74		Page 76
1	your sentence stands without a reference. Is	1	Q I'm sorry. What did we mark the
2	that right?	2	Coussens as? 12?
3	A That's right.	3	A Twelve.
4	Q Other than the footnote, the two	4	Q That should have been 11.
5	sentences we just read are identical. True?	5	We have marked the Coussens' article
6	A Both sentences state the same fact in	6	now correctly as Exhibit 11, and I'll direct you
7	the same way. So, similar to our earlier	7	to the last two sentences of the first full
8	discussions, we've now seen a large collection of	8	paragraph. Put that, if you would, Doctor, side
9	fundamental factual information with with	9	by side with your report at page 9, sentence that
10	accurate information from now a number of sources	10	begins "in contrast," both sentences that begin
11	that are stated in similar ways through	11	"in contrast."
12	Wikipedia, other expert reports, and websites all	12	Are you with me?
13	about the fundamentals of cancer.	13	A I am.
14	Q The two sentences we just read, Doctor,	14	Q All right. So, in this published
15	are identical. Correct?	15	article, Ms. or Dr. Coussens writes, "In
16	MS. O'DELL:	16	contrast, proliferating cells that sustain
17	Object to the form.	17	DNA"
18	A We read one sentence in Wikipedia.	18	MS. O'DELL:
19	MS. BROWN:	19	Excuse me, Alli. Sorry. Tell me, are
20	Q And it is identical. True?	20	you in the second paragraph?
21	A Yes. The wording is the same. With,	21	MS. BROWN:
22	of course, Wikipedia, as you already stated,	22	I'm on the end of the first full
23	being editable by anybody and can pull that	23	paragraph.
24	content from anywhere, and it's the I'd have	24	MS. O'DELL:
			Page 77
1	to review I'd have to look to see what	1	Sorry. I thought you were in the first
2	reference 16 in Wikipedia is. But it's certainly	2	full paragraph.
3	possible that I and Wikipedia summarized the same	3	MS. BROWN:
4	information from the same source.	4	Begins "In contrast."
5	Q Let's go to page 9 of your report. One	5	MS. O'DELL:
6	of the articles that you relied on is an article	6	Okay.
7	by Lisa Coussens and Zena Werb. Do you recall	7	MS. BROWN:
8	that?	8	And we have that side by side with
9	A That does sound familiar, but I'll have	9	Dr. Levy's report, page 9, the paragraph that
10	to verify.	10	also begins "In contrast."
11	Q Handing you what we've marked as	11	MS. O'DELL:
12	Exhibit 12 [sic] to your report, the Coussens and	12	Thank you.
13	Werb article.	13	MS. BROWN:
14	(DEPOSITION EXHIBIT NUMBER 11	14	Q Dr. Coussens writes, "In contrast,
15	WAS MARKED FOR IDENTIFICATION.)	15	proliferating cells that sustain DNA damage
16	A Yes, this is a this is a review.	16	and/or mutagenic assault" parens "(for
17	This is an insight review article, which, similar	17	example, initiated cells), continue to
18	to my report, is likely consolidating information	18	proliferate in microenvironments rich in
19	from the research knowledge.	19	inflammatory cells and growth/survival factors
20	MS. BROWN:	20	that support their growth."
21	Q I'd like to direct you to the last two	21	Do you see that sentence?
22	sentences of Exhibit 10, the Coussens' article,	22	A I do.
23	the last two sentences in the first paragraph.	23	Q The next sentence reads, "In a sense,"
24	A Exhibit 10 or 12?	24	comma, "tumors act as wounds that fail to heal."
			.,

20 (Pages 74 to 77)

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Shawn Levy, Ph.D.

	Page 78		Page 80
1	See that?	1	Q My question, Doctor, was: Except for
2	A I do.	2	one word, the two sentences we just read from
3	Q Directing your attention to page 9 of	3	Coussens are identical to the two sentences in
4	your report, Doctor, you write, "In contrast,"	4	your report. Is that correct?
5	comma, "proliferating cells that sustain DNA	5	MS. O'DELL:
6	damage and/or mutagenic insult parens "(for	6	Object to the form.
7	example," comma, "initiated cells)," end paren,	7	A So, I as as stated, the two
8	"continue to proliferate in microenvironments	8	sentences are similar.
9	rich in inflammatory cells and growth/survival	9	MS. BROWN:
10	factors that support their growth," period. "In	10	Q Except for one word, they are
11	a sense, tumors act as wounds that fail to heal."	11	identical. Is that correct?
12	Do you see that?	12	MS. O'DELL:
13	A I do.	13	Object to the form. He's asked
14	Q Except for one word, Doctor, those two	14	you've asked the question. He's answered your
15	sentences, including the slashes and the	15	question.
16	parentheses, are identical. Correct?	16	A Again, the two sentences are similar.
17	MS. O'DELL:	17	MS. BROWN:
18	Object to the form.	18	Q Do you understand "identical," what
19	A Those two sentences are similar.	19	"identical" means?
20	MS. BROWN:	20	A Yes. Exactly the same.
21	Q Except for one word, those two	21	Q Okay. Except for one word, those two
22	sentences are identical. True?	22	sentences are exactly the same in the Coussens
23	MS. O'DELL:	23	article and your report. True?
24	Object to the form. Asked and	24	MS. O'DELL:
			Page 81
1	answered.	1	Object to the form. Asked and
2	A Yeah. I'd certainly appreciate the	2	answered.
3	similarity between the between the two. But	3	A And we're we're saying the same
4	that's again, as we've been discussing now for	4	thing in different ways, which is that the two
5	an extensive amount of time, in the introductory	-	
_	an extensive amount of time, in the introductory	5	sentences are similar, stating factual
6	review content of the report	6	sentences are similar, stating factual information about fundamental cancer biology and
6 7	•		
	review content of the report	6	information about fundamental cancer biology and
7	review content of the report In fact, I reference the Coussens and	6 7	information about fundamental cancer biology and in two similar review articles.
7 8	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that	6 7 8	information about fundamental cancer biology and in two similar review articles. MS. BROWN:
7 8 9	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar	6 7 8 9	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word.
7 8 9 10	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual	6 7 8 9 10	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct?
7 8 9 10 11	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including	6 7 8 9 10 11	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar.
7 8 9 10 11 12	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references.	6 7 8 9 10 11 12	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference
7 8 9 10 11 12 13	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL:	6 7 8 9 10 11 12 13	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True?
7 8 9 10 11 12 13 14	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL: Excuse me. My microphone is broken.	6 7 8 9 10 11 12 13 14	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True? A Let me review again to be sure that we
7 8 9 10 11 12 13 14 15	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL: Excuse me. My microphone is broken. VIDEOGRAPHER:	6 7 8 9 10 11 12 13 14 15	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True? A Let me review again to be sure that we would before answering.
7 8 9 10 11 12 13 14 15	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL: Excuse me. My microphone is broken. VIDEOGRAPHER: It's still working. You're good. You	6 7 8 9 10 11 12 13 14 15 16	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True? A Let me review again to be sure that we would before answering. Taken out of context, those two
7 8 9 10 11 12 13 14 15 16	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL: Excuse me. My microphone is broken. VIDEOGRAPHER: It's still working. You're good. You can just lay it on the table and we'll fix it at	6 7 8 9 10 11 12 13 14 15 16	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True? A Let me review again to be sure that we would before answering. Taken out of context, those two sentences are similar.
7 8 9 10 11 12 13 14 15 16 17	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL: Excuse me. My microphone is broken. VIDEOGRAPHER: It's still working. You're good. You can just lay it on the table and we'll fix it at a break.	6 7 8 9 10 11 12 13 14 15 16 17	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True? A Let me review again to be sure that we would before answering. Taken out of context, those two sentences are similar. Q My question was, Doctor, the only
7 8 9 10 11 12 13 14 15 16 17 18	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL: Excuse me. My microphone is broken. VIDEOGRAPHER: It's still working. You're good. You can just lay it on the table and we'll fix it at a break. MS. O'DELL:	6 7 8 9 10 11 12 13 14 15 16 17 18	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True? A Let me review again to be sure that we would before answering. Taken out of context, those two sentences are similar. Q My question was, Doctor, the only difference is one word. Is that correct?
7 8 9 10 11 12 13 14 15 16 17 18 19 20	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL: Excuse me. My microphone is broken. VIDEOGRAPHER: It's still working. You're good. You can just lay it on the table and we'll fix it at a break. MS. O'DELL: And we've been going about an hour and	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True? A Let me review again to be sure that we would before answering. Taken out of context, those two sentences are similar. Q My question was, Doctor, the only difference is one word. Is that correct? MS. O'DELL:
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	review content of the report In fact, I reference the Coussens and Werb paper, so certainly it's not a surprise that wording is similar between them and used similar language to describe, again, these factual aspects of fundamental cancer biology, including similar references. MS. O'DELL: Excuse me. My microphone is broken. VIDEOGRAPHER: It's still working. You're good. You can just lay it on the table and we'll fix it at a break. MS. O'DELL: And we've been going about an hour and 13 minutes.	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	information about fundamental cancer biology and in two similar review articles. MS. BROWN: Q And the only difference is one word. Correct? A Two sentences are similar. Q My question was: The only difference is one word. True? A Let me review again to be sure that we would before answering. Taken out of context, those two sentences are similar. Q My question was, Doctor, the only difference is one word. Is that correct? MS. O'DELL: Objection to the form. Asked and

21 (Pages 78 to 81)

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Shawn Levy, Ph.D.

	Page 82		Page 84
1	sentences are different in their context and in	1	A I have.
2	terms of paragraph, but they are similar in	2	Q Have you seen the reviewer comments
3	structure and similar in wording.	3	referenced in Exhibit 13?
4	But, as you stated, with the exception	4	A I have not seen the reviewer comments.
5	of the so they're not. So in a language	5	Q Okay. Exhibit 13 does not inform the
6	perspective, they're not identical. They're	6	opinions of your report dated November of 2018.
7	similar.	7	True?
8	MS. BROWN:	8	A Exhibit 13, being the letter, that is
9	Let's take a break.	9	correct. It does not.
10	VIDEOGRAPHER:	10	Q Okay. And what's Exhibit 12?
11	Going off going off the record. The	11	A Exhibit 12 appears to be a preprint
12	time is 10:15 a.m.	12	version of the previously mentioned paper,
13	(OFF THE RECORD.)	13	"Molecular Basis Supporting the Association of
14	VIDEOGRAPHER:	14	Talcum Powder Use With Increased Risk of Ovarian
15	We're back on the record. The time is	15	Cancer," with the first author, Nicole Fletcher,
16	10:25 a.m.	16	and Dr. Saed is listed as the senior or
17	MS. BROWN:	17	corresponding author.
18	Q Doctor, I am handing you what I have	18	Q Did the lawyers provide you with this
19	marked as Deposition Exhibit 12 and 13. These	19	manuscript, Doctor?
20	are additional documents your counsel identified	20	A Yes, in a but that's yes, they
21	for us this morning as something you have seen	21	did.
22	since your report.	22	Q Do you recall when you were provided
23	(DEPOSITION EXHIBITS 12 AND 13	23	with a copy of the manuscript by the plaintiffs'
24	WERE MARKED FOR IDENTIFICATION.)	24	lawyers?
	Page 83		Page 85
1		1	
1 2	MS. BROWN:	1 2	A It was sometime in December toward
	MS. BROWN: Q Would you tell us what those two		
2	MS. BROWN: Q Would you tell us what those two exhibits are, please.	2	A It was sometime in December toward late in the year. The exact date, I'd have to review when it came in. And I believe it was
2	MS. BROWN: Q Would you tell us what those two exhibits are, please.	2 3	A It was sometime in December toward late in the year. The exact date, I'd have to review when it came in. And I believe it was and the version you have here is a more formal
2 3 4	MS. BROWN: Q Would you tell us what those two exhibits are, please. A Exhibit Exhibit 13 is a printed copy of an email dated December 26th informing	2 3 4	A It was sometime in December toward late in the year. The exact date, I'd have to review when it came in. And I believe it was
2 3 4 5	MS. BROWN: Q Would you tell us what those two exhibits are, please. A Exhibit Exhibit 13 is a printed copy	2 3 4 5	A It was sometime in December toward late in the year. The exact date, I'd have to review when it came in. And I believe it was and the version you have here is a more formal preprint version from the from Manuscript Central, whereas the version I received
2 3 4 5 6	MS. BROWN: Q Would you tell us what those two exhibits are, please. A Exhibit Exhibit 13 is a printed copy of an email dated December 26th informing Dr. Saed that a manuscript Is it helpful to identify the	2 3 4 5 6	A It was sometime in December toward late in the year. The exact date, I'd have to review when it came in. And I believe it was and the version you have here is a more formal preprint version from the from Manuscript
2 3 4 5 6 7	MS. BROWN: Q Would you tell us what those two exhibits are, please. A Exhibit Exhibit 13 is a printed copy of an email dated December 26th informing Dr. Saed that a manuscript	2 3 4 5 6 7	A It was sometime in December toward late in the year. The exact date, I'd have to review when it came in. And I believe it was and the version you have here is a more formal preprint version from the from Manuscript Central, whereas the version I received was a it appeared to be more of a submission
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	MS. BROWN: Q Would you tell us what those two exhibits are, please. A Exhibit Exhibit 13 is a printed copy of an email dated December 26th informing Dr. Saed that a manuscript Is it helpful to identify the manuscript? titled "Molecular Basis Supporting the Association of Talcum Powder Use With Increased Risk of Ovarian Cancer," submitted to Reproductive Sciences, has been reviewed. The comments were included in the letter. Q Have you seen A And I'm just reading the Q Sure. A It it appears that the so, summarizing the letter, the manuscript has been reviewed, the comments from the reviewers were provided back, and the journal has informed Dr. Saed that they'll accept a revised document for potential publication.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	A It was sometime in December toward late in the year. The exact date, I'd have to review when it came in. And I believe it was and the version you have here is a more formal preprint version from the from Manuscript Central, whereas the version I received was a it appeared to be more of a submission version. So commenting whether it's exact precisely the same content, I I wouldn't be able to say. Q Fair to say, though, Doctor, since you received the manuscript in December of 2018, the contents of the manuscript did not inform the expert report that you wrote in November of 2018; correct? A Actually, I would say the the I would not agree, from the perspective of Dr. Saed has a number of similar studies, as well as a number of abstracts that I had the opportunity to review that did inform some of the opinions in the report. Those same information and data were

22 (Pages 82 to 85)

	y. And I'll ask if you'd be kind
· ·	y. Aliu i ii ask ii you u oe kiliu
	o that at a break. Just let us know
3 I but the report does not contain the totality 3 if you had a	ccess to something other than the
	Or. Saed's 2018 report at the time
5 Q Right. Because the manuscript wasn't 5 you wrote yo	our report. Fair enough?
	nake a note.
7 report. Right? 7 MS. O'DEL	L:
8 A No, that's not the case. The the 8 Excus	se me. Object to the form.
9 the research, some of the research information 9 Abstracts, no	ot one.
10 from this study was available in abstract form, 10 MS. BROW	N:
11 and and some I believe a preprint from 11 Q Dr. I	Levy, you are a Ph.D.; is that
12 Dr. Saed. 12 correct?	
13 So it was so it was available. 13 A Corre	ect.
*	y. You are not an M.D.; correct?
	's correct.
	t's your Ph.D. in, sir?
	hemistry and genetics.
	re not an epidemiologist. Fair?
19 comparing them. 19 A I am	
	y. And the focus of your work at
, ,	na is on genome sequencing. Is that
22 A Let's see if I what I have here. 22 right?	
	The the genome sequencing is
24 book chapter which describes some of his 24 a tool that w	ve apply in in the work of my
Page 87	Page 89
1 oxidative stress experiments that are also 1 laboratory and	d in my responsibilities at
2 consistent with the information that's in the 2 HudsonAlpha	1.
3 in Exhibit 12, as well as some of his earlier 3 Q Hudso	onAlpha has a team known as the
4 review articles, and that's 4 Breakthrough	Breast and Ovarian Cancer Team. Is
5 Let me make sure I'm not missing 5 that right?	
	ot familiar with that name.
7 But, otherwise, the the experiments 7 Q Okay.	
	is a a group of faculty who
	nding related to breast and ovarian
	it's certainly possible that
	ed in in press for some title.
	you're not familiar with that
	say you're not a member of the
	Breast and Ovarian Cancer Team?
15 marked as Exhibit 12; correct? 15 MS. O'DELL	
	to the form.
	, I don't my involvement with
	arian cancer at HudsonAlpha is
	me projects. And whether or not I
	n that team, I I don't know.
21 preprint versus the final version of my report to 21 MS. BROWN	
	are folks at HudsonAlpha,
1 /5 Opportunity to review this or not	doctors at HudsonAlpha whose
** *	voted to studying ovarian cancer.

	Page 90		Page 92
1	Correct?	1	dating back to my early Ph.D. work, and those
2	A No, that's not correct.	2	include cancer. So certainly the subject of
3	Your practice is not devoted to ovarian	3	inflammatory response in both chronic and
4	cancer; correct?	4	acute, in controlling cancer has been a subject
5	MS. O'DELL:	5	of my research for some time and certainly
6	Object to the form.	6	bridged into ovarian cancer as well as other
7	A No. My my practice is not devoted	7	cancer types.
8	to ovarian cancer. And but that was	8	MS. BROWN:
9	irrelevant to what I was asked to do in	9	Q You've never published on chronic
10	this in this particular case for	10	inflammation as a potential mechanism by which
11	the regarding the content of my report.	11	talcum powder causes ovarian cancer. Correct?
12	MS. BROWN:	12	A Not specific to talcum powder, no.
13	Q I think I saw you've published one	13	Q You have never given a presentation on
14	article regarding ovarian cancer over the course	14	chronic inflammation as a mechanism for causing
15	of your career. Is that right?	15	ovarian cancer at all; right?
16	A That sounds correct.	16	MS. O'DELL:
17	Q You have not given any presentations	17	Object to the form.
18	regarding ovarian cancer. Is that true?	18	A I'm thinking through my
19	A I would say that's accurate.	19	I don't recall a specific presentation
20	Q You have not received any government	20	with regards to talcum powder and its role in
21	funding to study ovarian cancer. True?	21	ovarian cancer. As far as my discussions or
22	A I received government funding to study	22	presentations around the role of inflammation in
23	breast and ovarian cancer this was in 2002,	23	cancer, including ovarian, it it is it is
24	from the Department of Defense and then,	24	possible, but I can't think of a specific
	•		1
	Page 91		Page 93
1	subsequent to that, participated in at least one	1	presentation.
2	review for the Department of Defense in reviewing	2	MS. BROWN:
3	ovarian cancer research grants. So that is	3	Q Okay. Since you've been hired by
4	And then my membership in the	4	plaintiffs' lawyers, you have done some research
5	Vanderbilt Cancer Center as well as the	5	into the potential role of inflammation and
6	University of Alabama Birmingham Comprehensive	6	ovarian cancer. Is that right?
7	Cancer Center certainly have been involved in a	7	MS. O'DELL:
8	number of projects across a diversity of cancer	8	Object to the form.
9	types, including ovarian and breast cancer.	9	A Since since my what was requested
10	Q Prior to being hired by the plaintiffs'	10	of me from the plaintiffs' attorneys was to
11	lawyers in this litigation, you had not	11	provide a review of the biological plausibility
12	investigated the potential mechanisms by which	12	and a connection between talcum powder and
13	talcum powder could cause ovarian cancer. Is	13	inflammation and then discuss the relationship
14	that fair?	14	between inflammation and cancer.
15	MS. O'DELL:	15	MS. BROWN:
16	Object to the form.	16	Q Okay. As I understand you, Dr. Levy,
17	A Specific as in terms of a specific	17	you were asked by the plaintiffs' lawyers to
18	fundamental research project?	18	provide a review of the literature as it relates
19	MS. BROWN:	19	to the biological plausibility of talcum powder
20	Q At all.	20	and ovarian cancer. Is that right?
21	MS. O'DELL:	21	MS. O'DELL:
22	Object to the form.	22	Object to the form.
23	A So my research has included the role of	23	A No, that's not correct. What I was
		I -	
24	inflammation and a number of biological processes	24	I was asked to provide an opin expert opinion

	Page 94		Page 96
1	on the biological plausibility of the mechanism	1	some neurological diseases.
2	that of the ability of exposure of talc and	2	So this was a similar review as of
3	its constituent components to cause inflammation	3	those topics when asked to examine the biological
4	and/or cancer.	4	plausibility of a cause and effect; in this case,
5	MS. BROWN:	5	cause being exposure to talcum powder and effect
6	Q Do you see those as two different	6	being progression to cancer.
7	things?	7	Q Prior to being hired by the plaintiffs'
8	A Yes.	8	lawyers, you had not considered the biological
9	Q Okay. So you were asked to provide a	9	plausibility of talcum powder causing ovarian
10	mechanism by which talcum powder could cause	10	cancer. Correct?
11	cancer?	11	A No. I would say that's not true in
12	A No, that's not correct.	12	isolation. And the reason I say that's not true
13	MS. O'DELL:	13	is I had been aware of some of the literature and
14	Objection to form.	14	certainly some of the press that surrounded the
15	MS. BROWN:	15	suspected associations between talcum powder
16	Q Okay. Explain it to me.	16	exposure and cancer. So I was familiar with the
17	A I I was asked to provide a an	17	concept, but I had not at the time, until hired
18	opinion on the biological plausibility	18	by the plaintiffs' attorney, spent a significant
19	Q Of talcum powder causing cancer?	19	amount of time reviewing the literature and
20	A of talcum powder leading to the	20	developing a written opinion as to that
21	biological changes necessary to cause cancer.	21	biological plausibility.
22	Q Okay. As I understand what you just	22	Q You have not published your opinion
23	said, you were asked to re to provide an	23	contained in your opinions contained in the
24	opinion on the biological plausibility of talcum	24	report that we marked as Exhibit 2. Is that
20	Page 95		Page 97
1	powder leading to biologic changes that are	1	correct?
2	needed to cause cancer. Is that fair?	2	A That is correct.
3	MS. O'DELL:	3	Q You have not presented the opinions
4	Object to the form.	4	contained in Exhibit 2 at any medical or
5	A So I was asked from by the attorneys	5	scientific conference; correct?
6	to review the available literature across the	6	A That's correct.
7	spectrum of cancer and talcum powder and	7	Q You have not disclosed the opinions
8	constituent literature to develop an opinion	8	contained in Exhibit 2 to any of your colleagues;
9	around the biological plausibility that exposure	9	correct?
10	of exposure to talcum powder is	10	MS. O'DELL:
11	biologically that there is a biologically	11	Object to the form.
1 1 0	plausible mechanism that that can cause cancer.	12	A Not at this time, no. Considering I
12			
13	MS. BROWN:	13	had I had just finalized the report a short
13 14	Q Okay. And that is not something that	14	time ago, I haven't had the opportunity to
13 14 15	Q Okay. And that is not something that you had done prior to being hired by the	14 15	time ago, I haven't had the opportunity to consider publication, presentation, or or
13 14 15 16	Q Okay. And that is not something that you had done prior to being hired by the plaintiffs' lawyers. Fair?	14 15 16	time ago, I haven't had the opportunity to consider publication, presentation, or or discussion with colleagues.
13 14 15 16 17	Q Okay. And that is not something that you had done prior to being hired by the plaintiffs' lawyers. Fair? A Developing such an opinion?	14 15 16 17	time ago, I haven't had the opportunity to consider publication, presentation, or or discussion with colleagues. MS. BROWN:
13 14 15 16 17 18	 Q Okay. And that is not something that you had done prior to being hired by the plaintiffs' lawyers. Fair? A Developing such an opinion? Q Correct. 	14 15 16 17 18	time ago, I haven't had the opportunity to consider publication, presentation, or or discussion with colleagues. MS. BROWN: Q Do you plan to seek publication of the
13 14 15 16 17 18 19	 Q Okay. And that is not something that you had done prior to being hired by the plaintiffs' lawyers. Fair? A Developing such an opinion? Q Correct. A Or or so writing such a report, 	14 15 16 17 18 19	time ago, I haven't had the opportunity to consider publication, presentation, or or discussion with colleagues. MS. BROWN: Q Do you plan to seek publication of the information contained in your report in Exhibit
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Page 98 Page 100 1 O Does HudsonAlpha --1 or -- or -- or dispute whether or not those 2 First of all, what's your position at 2 ovarian cancer or other cancer types may have had 3 3 HudsonAlpha, Doctor? a relationship to talcum powder. So the short 4 4 answer being I -- I don't have the information to So I'm a faculty investigator, which 5 would be analogous to a faculty member at a 5 answer that. 6 research institution, similar to -- or I should 6 MS. BROWN: 7 7 HudsonAlpha has a Code of Ethics. Are take a step back and just --8 To be accurate, HudsonAlpha is a 8 you familiar with it? 9 9 private nonprofit research institution, similar 10 to Broad Institute, Stowers, et cetera. So we 10 Q Are you familiar with the financial disclosure requirements of HudsonAlpha? 11 11 are academic in nature, meaning that most of our 12 funding or the vast majority of our funding comes 12 I am. 13 13 from grants and contracts. So that's why I say Have you complied with those in Q 14 it's analogous to faculty at a research 14 connection with your work as an expert witness 15 institution. 15 for plaintiffs in this case? 16 16 I have. My other responsibilities are the 17 17 management and oversight of the production and O And tell us what you've done to comply 18 research laboratories, so that provides us an 18 with HudsonAlpha's Code of Ethics and financial 19 19 disclosure requirements. opportunity to work with approximately 1200 20 20 different laboratories from around the world in Their Code of Ethics and financial 21 21 support of roughly 5,000 projects over the last requirement is requirement to disclose any 22 nine and a half years. And that's -- it's 22 relationships that have a financial component 23 23 provided a broad spectrum of activities and over -- I don't recall the minimum amount, but it 24 24 abilities to work in these types of projects. is -- it is fairly modest, hundreds of dollars. Page 99 Page 101 1 1 And then I also oversee the clinical And that reporting requirement is the -- is -- is 2 laboratories as well. And adult oncology is a 2 for the previous year, and it is due in July, I 3 3 major focus of that research. I currently lead believe is the time frame, although I'd have to 4 the largest profiling effort in adult cancer in 4 make sure. It's -- I know it's not the end of 5 5 the nation, which involves 15 national cancer the calendar year. So on my next disclosure, 6 6 this, of course, activity would be disclosed. institutes. And ovarian cancer is a component of 7 that research, although not the only cancer that 7 In addition to that, via 8 8 we research in that -- in that's -- in that conversation -- regular review with the president 9 program. 9 of the institution, I provide a general report on 10 10 None of the 5,000 projects you just consulting activities; for example, these 11 mentioned have dealt with talc. Is that fair? 11 activities. 12 That is fair. 12 Α HudsonAlpha's policy is faculty members 13 Q And none of the work at the clinical 13 are allowed up to 20 percent of your time towards labs that you just mentioned have dealt with 14 14 consulting activities that have a relationship to 15 15 talc; correct? your research area, such as the evaluation of the 16 MS. O'DELL: 16 biologically plausible mechanism of talc in 17 17 Object. ovarian cancer. So based on both the timing of 18 I am -- I would say there's a 18 the Code of Ethics with regards to the financial Α 19 statistical probability that some of the ovarian 19 disclosure as well as the ad hoc reporting of 20 cancer samples that have been observed in the 20 consulting engagements with the president of the 21 clinical laboratory may very well have 21 institution, I'm in compliance with the current 22 been -- have come from patients exposed to talcum 22 policies of HudsonAlpha. 23 powder. But I have no direct knowledge of that, 23 The president of HudsonAlpha is aware 24 nor have we performed any testing to confirm 24 of your opinions in this case?

1 A I have not discussed my opinions specifically to this case with him; just the a general knowledge that I was asked to participate as an expert witness. He didn't ask, and I didn't provide the content. 6 Q No on at HudsonAlpha is aware of your opinion that talcum powder causes chronic inflammation which can cause ovarian cancer? Is that right? 10 A I have – I have not specifically shared the contents of the report or – or my opinions widely at HudsonAlpha. 12 Q Did you disclose last July that you had already been hired and submitted invoices to the plaintiff's lawyers? 13 A No. If S – if S an electronic disclosure. It's not actually done on paper. 20 Q One of the things that HudsonAlpha does it is it partners with the University of Alabama in a comprehensive cancer center, correct? 21 A No, that wouldn't be correct. 22 HudsonAlpha is sware of your opinion that talcum powder causes chronic inflammation with the University of Alabama in a comprehensive cancer center, correct? 23 A No, that wouldn't be University of Alabama in a comprehensive Cancer Center on projects involving ovarian cancer? 24 HudsonAlpha is sware of your opinion that talcum powder causes chronic involving ovarian cancer? 25 A No that wouldn't be University of Alabama in a comprehensive cancer center, correct? 26 A I may our any be more familiar with this than I. 27 They're very specific with their use of the work wouldn ont characterize them as a partner of the University of Alabama Cancer Center. 28 A No, that wouldn't be correct. 29 A No, that wouldn't be University of Alabama in a comprehensive cancer center, correct? 20 A re you have that documentation? 21 A They're very specific with their use of the work wouldn ont characterize them as a partner of the University of Alabama in a cancer center. 29 We certainly have — there are faculty members at University of Alabama Birmingham who a cancer center. 20 Are you aware of the work that decare center. 21 A Pan aware of some of the work that HudsonAlpha does with the Unive		Page 102		Page 104
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Shawn Levy, Ph.D.

Page 106 Page 108 1 that cancer is a disease of unregulated cell 1 Now, the -- whether that represents the 2 2 complete milieu of possibilities is -- is what is 3 3 currently under research. Back to our earlier con- -- earlier 4 conversation, some of the fundamental facts that 4 MS. BROWN: 5 we had discussed and, in fact, I think well 5 Were you aware that the University of 6 replicated in a number of sources, as you pointed 6 Alabama Comprehensive Cancer Center is an NCI 7 out to me, you know, illustrate that there's a 7 center, National Cancer Institute? 8 milieu of genetic change leading to cellular 8 Yes. It's -- it's not only an 9 9 transformation, and that cellular damage, if we NCI-designated center; it's an NCI-designated 10 consolidate that as cellular damage, then has to 10 comprehensive cancer center, which is a slightly 11 work in concert with a number of other events 11 different classification. It's a -- there's more 12 12 criteria for a cancer center to meet to become providing the right environment for a tumor to 13 13 grow, such as inflammation, chronic or acute. comprehensive. 14 And, so, the -- you know, the -- the -- you know, 14 What does it mean to be an NCI center, 15 giving a singular cause would be inappropriate. 15 to you, if you know? 16 But I would say the mechanistic causes 16 Stated very simply, it means you have 17 of cancer are reasonably well understood, but how 17 a -- your cancer center is funded by a support 18 those apply to the wide diversity of cancer types 18 grant directly from the National Cancer Institute 19 remains an area of active investigation. 19 to provide -- that supports not only patient care 20 20 I think what's interesting on cancer in but also supports basic research, epidemiology 21 21 general is that there's no -- really no longer a and -- and health outcomes research in cancer. 22 bucket diagnosis. It is -- it -- lung cancer is 2.2 So, in a nutshell, it is a fairly 23 more complex than lung cancer and ovarian cancer, 23 comprehensive grant that supports a wide variety 24 certainly with the --24 of work within a cancer center that extends Page 107 Page 109 1 1 beyond basic -- basic care. As I'm sure you're well aware, with the 2 molecular subtypes and other things, it's a 2 The National Cancer Institute has 3 3 complicated disease as well. funded a number of projects that the scientists 4 4 at HudsonAlpha are working on. Is that fair? So to summarize that is -- to summarize 5 5 all of that complexity by saying that the cause I'd have to certainly review the grant 6 6 is known or unknown I think would vastly portfolio. But I'm certain that, since I myself 7 underestimate the -- our current state of the art 7 have funding from that cancer center, yes, the 8 8 or knowledge of how complex cancer is as a NCI does fund some -- some number of 9 condition. 9 investigators at HudsonAlpha. 10 10 And you consider the NCI to be a 11 Scientists, researchers, public health 11 reputable public health authority; correct? 12 12 No, not necessarily. The NCI is really authorities continue to investigate the mechanism 13 by which ovarian cancer is caused. Correct? 13 not a public health authority. The N -- the NCI 14 14 is a -- is a scientific administration center Α That's correct. 15 We do not, sitting here today in 2019, 15 within the National Institutes of Health. 16 have a complete understanding of the etiology of 16 Now, I'm speaking of their extramural 17 17 ovarian cancer. Correct? programs. The NCI also have intramural programs, 18 18 MS. O'DELL: where they have their own researchers and their 19 Object to the form. 19 own projects. I'm less familiar with those 20 I would say we have substantial 20 activities. 21 21 But together, I would state that the knowledge of factors and exposures that either 22 predispose or directly cause cancer in a large 22 NCI is a -- I don't have -- I guess I have not 23 23 number of -- large number of cancer areas, had any experience with the NCI that would lead 24 including ovarian cancer. 24 me to say that they are an authoritative public

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	Page 110		Page 112
1	health authority.	1	you are prepared to offer the opinion that talcum
2	Q Before forming your opinions in this	2	powder causes ovarian cancer.
3	case, Dr. Levy, did you look to see what the NCI	3	A I don't I don't think we have the
4	states about whether talcum powder causes ovarian	4	complete information for a sing you know, to
5	cancer?	5	have the opinion of a singular cause. But, at
6	A I believe I did see, from a number of	6	the same time, my opinions are that, as stated in
7	statements, certainly potentially from the NCI,	7	the report, there's a clear and well-evidenced
8	regarding the complete opinion and and	8	biologically plausible role for talcum powder
9	knowledge base for the role of talcum powder in	9	leading to ovarian cancer.
10	ovarian cancer.	10	Q On page 2 of your report, the second
11	Q Do you recall that the NCI has	11	full paragraph that begins "My report
12	concluded that there's inadequate evidence that	12	consists"
13	talcum powder increases the risk of ovarian	13	You with me?
14	cancer?	14	A Yes.
15	MS. O'DELL:	15	Q you state you reference your
16	Object to the form.	16	conclusions regarding this cause-and-effect
17	A Which what specifically are you	17	relationship.
18	referring to? I I wouldn't be able to answer	18	Do you see that?
19	that accurately without knowing which specific	19	A I do.
20	report or statement that you're referring to.	20	Q Do you mean by that that you have an
21	MS. BROWN:	21	opinion that talcum powder causes the effect of
22	Q I'm wondering if, sitting here today,	22	ovarian cancer?
23	you recall looking at information about the	23	A No. That that wasn't the meaning of
24	classification of risk factors for ovarian cancer	24	that statement of cause and effect. It was it
	Page 111		Page 113
1	as done by the NCI.	1	was a more of a general statement of a cause
2	as done by the NCI. A I don't recall that specifically. I	1 2	was a more of a general statement of a cause being exposure to talc and effect being that
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2 3 4	as done by the NCI. A I don't recall that specifically. I don't also recall seeing any statements from the NCI regarding safety of any product.	2 3 4	was a more of a general statement of a cause being exposure to talc and effect being that biologically plausible mechanism. Q You mentioned a moment ago that you
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	Page 114		Page 116
1	cellular change within the ovary which then leads	1	of observations and studies that
2	to malignant transformation, and that, as stated	2	have certainly exist. And, again, their
3	in the report, there's a biologically plausible	3	review and and content is what went to the
4	mechanism that exposure to talcum powder and its	4	opinions in my report.
5	constituents can create those necessary changes.	5	Q And most of the studies that you cite,
6	MS. BROWN:	6	Dr. Levy, talking about chronic inflammation
7	Q Do you believe, Doctor, there's	7	refer to chronic inflammation as a hypothesis of
8	sufficient evidence that talcum powder, through	8	one of the ways cancer might form in the ovary.
9	chronic inflammation, causes ovarian cancer in	9	Correct?
10	some individuals?	10	MS. O'DELL:
11	A No. That that was not my not my	11	Object to the form.
12	opinion or statement. And I would say	12	A Let me sorry. Let me read your
13	specifically chronic inflammation is, again,	13	question.
14	narrowing the focus in an inappropriate way, and	14	No. I would disagree. At least,
15	the evidence doesn't illustrate that chronic	15	certainly not most of the studies that I cite.
16	inflammation is a singular sufficient detail or,	16	MS. BROWN:
17	I should say, effect to result in ovarian cancer.	17	Q Do you believe chronic inflammation is
18	It's certainly a factor, as as well described	18	an established mechanism of ovarian cancer?
19	in the in the literature.	19	A Yes, in the sense that chronic
20	And and, again, I would defer to	20	inflammation is a well-established mechanism of
21	other expert reports that have similar opinions	21	cancer in general, including ovarian cancer.
22	regarding inflammation, chronic inflammation	22	This is first observed in the 1800s and has since
23	being one of them.	23	been become well-established in the in the
24	And it may be important to provide an	24	cancer field that inflammation plays a
	Page 115		Page 117
1	important distinction that cellular damage or	1	significant role in both the initiation as well
1 2		1 2	significant role in both the initiation as well as progression of cancer.
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	Page 118		Page 120
1	inflammation has been established as a cause of	1	from animal models to in vitro studies, in vivo
2	ovarian cancer; correct?	2	studies, cohort studies, case-control studies.
3	MS. O'DELL:	3	There was quite a broad spectrum of information
4	Object to the form.	4	across a large number of years.
5	A No, that that's not what I said.	5	Q Do you believe you reviewed the
6	MS. BROWN:	6	totality of the epidemiology on talcum powder use
7	Q Explain it to me.	7	and ovarian cancer?
8	A I've stated that chronic inflammation	8	MS. O'DELL:
9	or inflammation in general, including chronic and	9	Object to the form.
10	acute infor inflammation, is a component and a	10	A I I reviewed the available studies
11	necessary component for the initiation and	11	that appeared to be relevant for the for the
12	progression of of cancer as we understand it	12	opinions that are expressed in my report.
13	today. And, in that, cancer, certainly ovarian	13	MS. BROWN:
14	cancer as well as a variety of other cancer	14	Q And when you say "available," what do
15	types, is included.	15	you mean?
16	Q What methodology did you employ to	16	A Meaning that I could I could
17	arrive at the conclusion that ovarian cancer is	17	discover in the scientific literature.
18	one of the cancers that can be caused by chronic	18	Q Did you conduct your own literature
19	inflammation?	19	searches in connection with your work in this
20	MS. O'DELL:	20	case?
21	Object to the form. Misstates his	21	A I did.
22	testimony.	22	Q How did you go about finding the
23	A Yeah. Again, we're not I'm not	23	totality of the evidence relating to whether
24	making a specific causal opinion with respect to	24	talcum powder causes ovarian cancer?
	Page 119		Page 121
1	any whether whether inflammation, talcum	1	A So the my methodology for the
2	powder use or other exposures. I my my	2	literature review in establishing my opinion
3	opinion in the report is is was not asked	3	regarding the biological plausibility of talcum
4	to be a causal opinion.	4	powder exposure inflammation and its potential
5	MS. BROWN:	5	role in ovarian cancer was based on, you know, my
6	Q You reference on page 2 of your report	6	activities and many other literature searches, so
7	that your opinions are based on assessing and	7	
1		1 ′	using a variety of computational tools and and
8	weighing the totality of the evidence, including	8	web-based resources, from journals to, I would
9	relevant literature and available documentation	8 9	web-based resources, from journals to, I would say, primarily PubMed being a resource, but also
9 10	relevant literature and available documentation and your experience as a geneticist and	8 9 10	web-based resources, from journals to, I would say, primarily PubMed being a resource, but also ISI, Web of Science, Google Scholar and a variety
9 10 11	relevant literature and available documentation and your experience as a geneticist and scientific researcher. Do you see that?	8 9 10 11	web-based resources, from journals to, I would say, primarily PubMed being a resource, but also ISI, Web of Science, Google Scholar and a variety of bioRxiv and I'm sure a number of other
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9 10 11 12 13	relevant literature and available documentation and your experience as a geneticist and scientific researcher. Do you see that? A Yes. Q What do you mean by "the totality of	8 9 10 11 12 13	web-based resources, from journals to, I would say, primarily PubMed being a resource, but also ISI, Web of Science, Google Scholar and a variety of bioRxiv and I'm sure a number of other sources. But those were probably the more primary resources for establishing what
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31 (Pages 118 to 121)

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	Page 122		Page 124
1	that I provided, those full that full content	1	relying on information in that article to form
2	was provided by the plaintiffs' lawyer to allow	2	your opinions in this case?
3	me to review it.	3	A No. I'm not relying on any singular
4	Q Did the plaintiffs' lawyers give you a	4	article or source to form my opinion on the case.
5	set of epidemiology on which you're relying on to	5	Q Are you relying in part on the
6	form your opinion?	6	information contained in the Blount article?
7	A No, they did not.	7	A Since I include it in the cited
8	Q If I look at your report, I see a	8	literature, certainly in some in some part.
9	reference list and then a separate Exhibit B. Is	9	Q What information are you relying on in
10	that right?	10	the Blount article?
11	A Yes.	11	A I would have to review the article to
12	Q So, for example, on page 18 of your	12	remind myself where the
13	report, you have a list of literature cited.	13	Q Take a look at it. We'll pull it right
14	Correct?	14	now.
15	A Yes.	15	What about Paoletti on page 22? Was
16	Let me make sure I have the page	16	that something you found on your own or did the
17	correct.	17	lawyers give you that?
18	Yes, beginning on page 18.	18	A So Paoletti
19	Q Is everything that appears in the	19	Q Uh-huh.
20	literature-cited list something that you found on	20	A Page 22?
21	your own, Dr. Levy?	21	Q Uh-huh.
22	A I would have to review the the list.	22	A Actually, the Paoletti one is familiar.
23	But there are certainly	23	That's an interesting one because it's in
24	Let me	24	Italian.
	Page 123		Page 125
1	I believe the Saed abstracts, as an	1	Q Are you relying on the information in
2	example	2	the Paoletti article to form your opinions in the
3	Let me see if there are	3	case?
4	No. I I believe, in the literature	4	A Again, the I wasn't relying on any
5	cited, there are certainly some number of	5	singular article but instead tried to present and
6	examples of information that was provided during		
		6	provide reference to as comprehensive a
7	the course of the development of my report from	7	provide reference to as comprehensive a collection of relevant literature in this in
8	the course of the development of my report from the plaintiffs' attorneys in terms of literature	7 8	provide reference to as comprehensive a collection of relevant literature in this in this space as possible, of which Paoletti,
8 9	the course of the development of my report from the plaintiffs' attorneys in terms of literature for my consideration, but that in no case in	7 8 9	provide reference to as comprehensive a collection of relevant literature in this in this space as possible, of which Paoletti, although being in Italian, there were some
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8 9 10 11 12 13 14 15 16 17 18 19 20 21	the course of the development of my report from the plaintiffs' attorneys in terms of literature for my consideration, but that in no case in every case it was provided as a as information. The vast majority or nearly the totality of this was information that I had that I indeed discovered myself and shared with the the attorneys, but certainly not complete. Q On page 18 you cite an article by Blount. Do you see that? A Yes. Q Was that given to you by the plaintiffs' lawyers?	7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	provide reference to as comprehensive a collection of relevant literature in this in this space as possible, of which Paoletti, although being in Italian, there were some enough translated aspects of that that it was worthy to include in the in that cited literature as being relevant to the to those to those opinions. Q Just to make sure we get on the same page here, Dr. Levy, when I ask are you relying on something, I don't mean by that question to suggest it's the only thing you're relying on. And I'll try to say "in part" to make it easy for us. Okay? A Right. Just want to be make sure we're clear.

32 (Pages 122 to 125)

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Shawn Levy, Ph.D.

	Page 126		Page 128
1	your opinions in this case?	1	presented.
2	A I would say in in part. As far as	2	MS. BROWN:
3	my opinions regarding the biologically plausible	3	Q Do you believe that baby talc alone can
4	mechanism that was presented, no, it does not	4	cause inflammation that may lead to ovarian
5	rely on that specific conclusions of that paper	5	cancer?
6	but, rather, that paper was included because of	6	A Based on my review of the literature,
7	its results regarding asbestos contamination in	7	there are a number of studies, both of those
8	industrial tale, which only support add	8	involving human studies in terms of case
9	support to the mechanism that I presented in the	9	controls, as well as a number of animal studies
10	report.	10	and then, more specifically, in vitro studies
11	Q Is your opinion in this case, Doctor,	11	that look at talcum powder and its ability to
12	based on an assumption that baby powder contains	12	produce clear markers of inflammation.
13	asbestos?	13	I am the I am not aware of any
14	A No, it is not.	14	specific testing that looked at platy talc
15	MS. O'DELL:	15	individually as a singular component without
16	Object to the form.	16	the or out of the context of the products we
17	MS. BROWN:	17	were just describing in a similar analysis. So I
18	Q Is your opinion in this case based on	18	don't I don't know that answer.
19	an assumption that baby powder contains	19	Q Is it your opinion that
20	fragrances?	20	Johnson & Johnson baby powder products are
21	MS. O'DELL:	21	contaminated with asbestos?
22	Objection to form.	22	MS. O'DELL:
23	A My my opinion considers the totality	23	Object to the form. Asked and
24	of the constituent components of baby powder,	24	answered.
	Page 127		
	rage 127		Page 129
1		1	
1 2	Shower to Shower, you know, under either, as	1 2	A I I I have I have been
	Shower to Shower, you know, under either, as we've been referring to it simply as talc or		A I I I have I have been provided expert report, and some of those are
2	Shower to Shower, you know, under either, as we've been referring to it simply as talc or talcum powder or by trade names such as	2	A I I I have I have been provided expert report, and some of those are referenced in the in the report, as we were
2	Shower to Shower, you know, under either, as we've been referring to it simply as talc or talcum powder or by trade names such as Johnson & Johnson or Shower to Shower, so the	2 3 4	A I I I have I have been provided expert report, and some of those are referenced in the in the report, as we were describing, that describe testing of a number
2 3 4	Shower to Shower, you know, under either, as we've been referring to it simply as talc or talcum powder or by trade names such as Johnson & Johnson or Shower to Shower, so the my opinions, as stated in the report, being	2 3	A I I I have I have been provided expert report, and some of those are referenced in the in the report, as we were describing, that describe testing of a number of number of samples,
2 3 4 5	Shower to Shower, you know, under either, as we've been referring to it simply as talc or talcum powder or by trade names such as Johnson & Johnson or Shower to Shower, so the my opinions, as stated in the report, being reasonably or trying to be reasonably	2 3 4 5	A I I I have I have been provided expert report, and some of those are referenced in the in the report, as we were describing, that describe testing of a number of number of samples, included Johnson & Johnson included in that,
2 3 4 5 6	Shower to Shower, you know, under either, as we've been referring to it simply as talc or talcum powder or by trade names such as Johnson & Johnson or Shower to Shower, so the my opinions, as stated in the report, being	2 3 4 5 6	A I I I have I have been provided expert report, and some of those are referenced in the in the report, as we were describing, that describe testing of a number of number of samples,
2 3 4 5 6 7	Shower to Shower, you know, under either, as we've been referring to it simply as talc or talcum powder or by trade names such as Johnson & Johnson or Shower to Shower, so the my opinions, as stated in the report, being reasonably or trying to be reasonably comprehensive. Therefore, it's not, you know, limited to any any singular component, whether	2 3 4 5 6 7	A I I I have I have been provided expert report, and some of those are referenced in the in the report, as we were describing, that describe testing of a number of number of samples, included Johnson & Johnson included in that, that showed how they that the results of those reports showed contamination by asbestos or
2 3 4 5 6 7 8	Shower to Shower, you know, under either, as we've been referring to it simply as talc or talcum powder or by trade names such as Johnson & Johnson or Shower to Shower, so the my opinions, as stated in the report, being reasonably or trying to be reasonably comprehensive. Therefore, it's not, you know,	2 3 4 5 6 7 8	A I I I have I have been provided expert report, and some of those are referenced in the in the report, as we were describing, that describe testing of a number of number of samples, included Johnson & Johnson included in that, that showed how they that the results of those reports showed contamination by asbestos or or or asbestos-like fiber. So, therefore,
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Shower to Shower, you know, under either, as we've been referring to it simply as talc or talcum powder or by trade names such as Johnson & Johnson or Shower to Shower, so the my opinions, as stated in the report, being reasonably or trying to be reasonably comprehensive. Therefore, it's not, you know, limited to any any singular component, whether it be majority or minority, in the in the talcum powder products, as I just stated. MS. BROWN: Q Is your opinion in this case based on an assumption that Johnson & Johnson baby powder products contain heavy metals? MS. O'DELL: Objection to form. A Again, similar to the earlier statement, the opinion is not subject to any any singular component. I think the information regarding the in deferring to some of the other experts regarding the knowledge of constituent components, whether they be heavy	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	A I I I have I have been provided expert report, and some of those are referenced in the in the report, as we were describing, that describe testing of a number of number of samples, included Johnson & Johnson included in that, that showed how they that the results of those reports showed contamination by asbestos or or or asbestos-like fiber. So, therefore, I've been presented with that evidence. MS. BROWN: Q Have you relied on that evidence in forming your opinions in this case? A Again, no, not not as a singular evidence. So, as we just discussed a moment ago, that is a component piece of evidence that leads and is supportive of the biologically plausible mechanism described in the report. You know, certainly, it is inarguable that asbestos and asbestos-like fibers cause inflammation. There's also ample evidence of the inflammatory effects of talc. And and talc

33 (Pages 126 to 129)

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Shawn Levy, Ph.D.

	Page 130		Page 132
1	So I think, again, similar to the	1	in any of the above-referenced studies.
2	relationship of asbestos and inflammation, it's a	2	MS. O'DELL:
3	well-established scientific fact that talc has an	3	Objection. Misstates his testimony.
4	inflammatory role now. Or I should say as of	4	A So reading reading back my
5	today.	5	testimony
6	Q Have you attempted to quantify, based	6	MS. BROWN:
7	on the reports of Dr. Longo that you reviewed,	7	Q So, Doctor, I see that you're looking
8	how much asbestos contamination is in	8	at the realtime?
9	Johnson & Johnson baby powder products?	9	A Yes.
10	MS. O'DELL:	10	Q To get clarification on the question?
11	Objection. Vague as to form.	11	A No. To to remem to you asked
12	A I	12	me a question about my statement.
13	MS. O'DELL:	13	Q Correct.
14	As to the volume and time contained,	14	A And I was reviewing specifically what I
15	et cetera.	15	had stated so I could answer your question
16	A My my answer is simply that I wasn't	16	accurately.
17	asked to quantify that as part of my report.	17	Q Terrific. So I want to know what you
18	MS. BROWN:	18	were talking about when you said you were unable
19	Q Whether there is asbestos in Johnson &	19	to discover the contamination rate.
20	Johnson baby powder products or not does not	20	A To clarify, I was not asked to estimate
21	impact your opinions in this case; is that right?	21	or determine the contamination rate, and my
22	MS. O'DELL:	22	statement regarding that was in reference to the
23	Object to the form.	23	material I reviewed and the literature that is
24	A The opinions regarding the biological	24	referenced in my report. I don't recall in any
	Page 131		Page 133
1	plausibility described in my report and its	1	
_		1 +	of those studies observing a specific statement
2	relationship to asbestos are somewhat separate,	2	of those studies observing a specific statement of amount of asbestos in the talcum powder
3			
	relationship to asbestos are somewhat separate,	2	of amount of asbestos in the talcum powder
3	relationship to asbestos are somewhat separate, meaning that I have I was not able to discover	2 3	of amount of asbestos in the talcum powder products that were under study. So, therefore, I
3 4	relationship to asbestos are somewhat separate, meaning that I have I was not able to discover what the contamination rate or content of	2 3 4	of amount of asbestos in the talcum powder products that were under study. So, therefore, I am not able to form an opinion surrounding that
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3 4 5 6	relationship to asbestos are somewhat separate, meaning that I have I was not able to discover what the contamination rate or content of asbestos was in any of the referenced studies through the course of my report, so, therefore, I	2 3 4 5 6	of amount of asbestos in the talcum powder products that were under study. So, therefore, I am not able to form an opinion surrounding that contamination rate. Q Would the same be true, Doctor, for
3 4 5 6 7 8	relationship to asbestos are somewhat separate, meaning that I have I was not able to discover what the contamination rate or content of asbestos was in any of the referenced studies through the course of my report, so, therefore, I can't comment on the likelihood or of of how many or any or any or all of those samples contain asbestos.	2 3 4 5 6 7 8	of amount of asbestos in the talcum powder products that were under study. So, therefore, I am not able to form an opinion surrounding that contamination rate. Q Would the same be true, Doctor, for heavy metals? A Yes, that's correct. Q And when I say the same would be true,
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Shawn Levy, Ph.D.

provided later, the ex the recent review of powder products cause chronic inflammation.		Page 134		Page 136
4 you calculated the amount of fragrances that are presented in Johnson & Johnson's baby powder of products? 5 MS. O'DELL: 6 O'Digetion to form. 9 A I - I wasn't asked to to make those calculations. All o'would defer to other expert reports that I had an opportunity to review recently that did perform those calculations. 12 recently that did perform those calculations. 13 MS. BROWN: 14 Q Your opinions in this case are not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer is not dependent on heavy metals being present in talcum powder could cause ovarian cancer based on on any singular components to any singular components being	1	those on those products.	1	fragrances as well as asbestos, I would say my
4 you calculated the amount of fragrances that are present in Johnson & Johnson's baby powder products? 5 mSo, OTDELL: 6 Q Your opinion that chronic inflammation is a biologically plausible mechanism by which calculations. And I would defer to other expert 1 proports that I had an opportunity to review 2 recently that did perform those calculations. 13 MS, BROWN: 14 Q Your opinions in this case are not 4 A My - my opinions are not based on - on any singular component or constituent because the - the available information did not seintifically test any singular components or - or allow - 2 talcum powder could not be more helpful. 15 Johnson & Johnson baby powder, correct? 16 A I think that was - 1	2	MS. BROWN:	2	opinion now is that that information continues to
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MS. O'DELL:	5	present in Johnson & Johnson's baby powder	5	MS. BROWN:
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9	7	MS. O'DELL:	7	
10	8	Objection to form.	8	-
11	9	A I I wasn't asked to to make those	9	dependent on heavy metals being present in talcum
12 Comparison of the form those calculations. 12 Comparison of the form. Asked and answered. 13 A My - my opinions are not based on	10	calculations. And I would defer to other expert	10	powder; correct?
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Shawn Levy, Ph.D.

1 don't know if any of the studies use 2 And I would and then my conclu 3 Q Hold on. No question yet. 4 A Okay. 5 Q And what I want to know, Doctor, is how 6 do you define the talcum powder products that 7 you've listed here on page 17 of your report? 8 A Primarily the products that are when 9 I consider the totality of everything that I've 10 been examining, the talcum powder products, 11 including Johnson & Johnson and Shower to Shower 12 as, you know, I refer to those consumer products 13 under the term "talcum powder." 14 Q What about other consumer talcum powder 15 products? Are they included in your conclusions 16 here on page 17? 17 MS. O'DELL: 18 Object to the form. 19 A So my my conclusions are based on 20 the on the literature review. And, similar to 21 our discussions regarding contaminants and the 22 ability to quantitate those, many of the studies 24 that. I'd have to, again, would have 3 some of that information to determine that. I'd have to, again, would have 4 that. I'd have to, again, would have 5 some of that information to determine that in formation to determine the term was a if that was a if that was a variable in am as some of that information to determine a some of that information to determine as some of that information to determine as one of that information to determine as or if that are the basis of the do your conclusion that chre inflammation is caused by talcum principles, that are the basis of the down products are inflammation to accurate the basis of the studies use as if that inflammation to determine inflammation is caused by talcum principles. A Yeah. Again, to restate, sin the earlier questions, the my met as you had then a summary	e to review ine if there y of the ne report. employ here in onic powder products? ered. nilar to hodology was establishing n a f the evidence plish if, based ctual mechanism n a again, lly plausible
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17 MS. O'DELL: 18 Object to the form. 19 A So my my conclusions are based on 20 the on the literature review. And, similar to 21 our discussions regarding contaminants and the 22 ability to quantitate those, many of the studies 23 did not specifically delineate which product or 24 the timing of that product. 17 on established or or known or factors and the principles, is there a can can a described go from cause to effect in an evidence-supported biological manner. 20 in an evidence-supported biological manner. 21 manner. 22 There's a few references I can you that describe that method in a principles, is there a can can a described go from cause to effect in an evidence-supported biological manner. 22 manner. 23 manner, if that's helpful.	ctual mechanism 1 a again, lly plausible n provide
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22 ability to quantitate those, many of the studies 23 did not specifically delineate which product or 24 the timing of that product. 22 There's a few references I can 23 you that describe that method in a p 24 manner, if that's helpful.	-
23 did not specifically delineate which product or 24 the timing of that product. 23 you that describe that method in a product or 24 manner, if that's helpful.	-
24 the timing of that product. 24 manner, if that's helpful.	oublished
Page 139	
Page 139	
	Page 141
1 In contrast, some of the more recent 1 MS. BROWN:	
2 information available specific to the 2 Q That would be helpful.	
3 constituents did meet that definition, so I would 3 A They are these are our	
4 say these conclusions apply to both the specific 4 MS. O'DELL:	
5 products that I mentioned, Johnson & Johnson and 5 These are mine.	
6 Shower to Shower, as well as potentially other 6 THE WITNESS:	
7 products. But quant quantifying which study, 7 Yeah.	
8 I would have to go through study by study to 8 There's a I can get them	1
9 answer any questions about which specific may be 9 MS. BROWN:	
10 included. 10 Q Are the published metho	ds referenced in
11 MS. BROWN: 11 your report, Doctor?	
12 Q Do you include talc-containing 12 A No, actually, those are no	
13 deodorizing sprays in your definition of a talcum 13 Q Okay. How would you g	
14 powder product? 14 the published methods that contains 15 and	•
15 A None of the literature that I 15 of the methodology you employ	
16 reviewed or can recall was limited to those 16 A No. It's that I was just sa	
17 deodorant sprays in terms of a as a study 17 there's a published peer-review	-
18 variable that I can that I can think of. 18 article that is the same as the me	•
19 Q I'm not sure what you mean by that. 19 you if you wanted to review the	
20 A So the the basis of this report was 20 reference this specific paper in the talgum powder products and I don't recall 21 O Olive And you have a	_
21 on the talcum powder products, and I don't recall 21 Q Okay. And you have a 22 any of the studies that delineated talcum powder 22 copy of that in front of you right	
any of the studies that delineated talcum powder 22 copy of that in front of you right as a powder versus a talc-containing deodorant 23 A I do.	. now, Doctor?
23 as a powder versus a taic-containing deodorant 23 A 1 do. 24 spray as a as a variable in the study. So I 24 Q Okay. So let's mark that	as Exhibit
5pray as a as a variable in the study. So I	uo LAIIIUII

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Shawn Levy, Ph.D.

	Page 142		Page 144
1	14.	1	MS. O'DELL:
2	(DEPOSITION EXHIBIT NUMBER 14	2	Object to the form.
3	WAS MARKED FOR IDENTIFICATION.)	3	A No, that's not true.
4	MS. BROWN:	4	MS. BROWN:
5	Q The title of the document is	5	Q The lawyers for plaintiffs found
6	"Evaluating Biological Plausibility in Supporting	6	Exhibit 14 in the scientific literature; correct?
7	Evidence For Action Through Systematic Reviews in	7	A That's correct.
8	Public Health."	8	Q In reviewing the scientific literature,
9	When is the first time you reviewed	9	did you pay attention to the articles that
10	this document, Doctor?	10	classify different types of talcum powder
11	A In the last the last day or so.	11	products?
12	Q Was the document provided to you by the	12	MS. O'DELL:
13	lawyers for plaintiffs?	13	Object to the form.
14	A Yes.	14	A Could you give a specific example, and
15	Q The document is not referenced in your	15	then I
16	report. True?	16	I wouldn't be able to answer without
17	A It is not referenced. That's correct.	17	knowing.
18	Q You did not review the document prior	18	MS. O'DELL:
19	to writing your report; correct?	19	Q Sure.
20	A That's right.	20	Do you understand that some of the talc
21	Q The document was something the lawyers	21	epidemiology separates use by type of talcum
22	for plaintiffs gave you after you had already	22	powder product?
23	written and authored your report; correct?	23	MS. O'DELL:
24	A That's correct. I provided that as an	24	Objection to form.
	Page 143		Page 145
1	example of the of a published example of the	1	A Again, do you have a specific example
2	methodology that I employed.	2	of one of the studies so I could so I'd be
3	Q You didn't endeavor to research the	3	able to accurately answer your question?
4	scientific literature to find a published	4	MS. BROWN:
5	published example of your methodology, did you?	5	Q Here's what I want to know. Did you
6	MS. O'DELL:	6	look at the studies that separated deodorizing
7	Objection to form.	7	sprays from powder products from cornstarch, for
8	A I it wasn't that wasn't what I	8	example?
9	was I wasn't asked to reference the	9	A Certainly in my review I made as
10	methodology in my report. I was, again, asked to	10	comprehensive a review of available literature
11	provide an opinion on a biologically plausible	11	as as possible. And, again, if you can name a
12	mechanism and then, since our discussion has	12	specific study or one of the references, I can
13	transferred to methodology, to be complete, I	13	confirm if that was if that was part of
14	wanted to provide an example of a published	14	the my review of the epidemiology.
	version of the methodology that that is	15	Q Do you hold the opinion that talcum powder-containing deodorant sprays causes
15	almillanda anad lagar dagastica to		nowder-containing deodorant chrave causes
16	similar to or at least describes in a summary or	16	
16 17	really in that particular paper an exemplary	17	inflammation?
16 17 18	really in that particular paper an exemplary fashion of the criteria for biological	17 18	inflammation? MS. O'DELL:
16 17 18 19	really in that particular paper an exemplary fashion of the criteria for biological plausibility and the methods used therein.	17 18 19	inflammation? MS. O'DELL: Objection to form. Vague.
16 17 18 19 20	really in that particular paper an exemplary fashion of the criteria for biological plausibility and the methods used therein. MS. BROWN:	17 18 19 20	inflammation? MS. O'DELL: Objection to form. Vague. A So if the
16 17 18 19 20 21	really in that particular paper an exemplary fashion of the criteria for biological plausibility and the methods used therein. MS. BROWN: Q Exhibit 14 is the product of research	17 18 19 20 21	inflammation? MS. O'DELL: Objection to form. Vague. A So if the Again, I was asked to provide an
16 17 18 19 20 21 22	really in that particular paper an exemplary fashion of the criteria for biological plausibility and the methods used therein. MS. BROWN: Q Exhibit 14 is the product of research the lawyers for plaintiffs conducted on a	17 18 19 20 21 22	inflammation? MS. O'DELL: Objection to form. Vague. A So if the Again, I was asked to provide an opinion on the biologically plausible mechanism
16 17 18 19 20 21	really in that particular paper an exemplary fashion of the criteria for biological plausibility and the methods used therein. MS. BROWN: Q Exhibit 14 is the product of research	17 18 19 20 21	inflammation? MS. O'DELL: Objection to form. Vague. A So if the Again, I was asked to provide an

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	Page 146		Page 148
1	powder could possibly follow that same	1	Objection to form. Vague.
2	biologically plausible mechanism.	2	A My my opinions are based on the
3	MS. BROWN:	3	available scientific literature regarding the
4	Q Is there a certain amount of talcum	4	testing performed on talcum powder and talcum
5	powder that a product must contain to cause	5	powder products.
6	inflammation?	6	I in my review of those results, I
7	MS. O'DELL:	7	did not see a specific enumeration of any one
8	Objection to form.	8	particular chemical composition that was had a
9	A That wasn't something I was asked	9	greater or lesser cause or effect relationship.
10	to to quantify, similar to the discussions we	10	MS. BROWN:
11	had about metals, fragrances, and asbestos.	11	Q Do you know how much talcum powder is
12	MS. BROWN:	12	in the Shower to Shower product?
13	Q In forming your opinion that talcum	13	A No. I wasn't I wasn't asked to
14	powder products cause inflammation, you have not	14	quantify that, and I would defer to some of the
15	attempted to quantify how much talcum powder is	15	other expert reports regarding the composition of
16	in those products; is that right?	16	those products.
17	MS. O'DELL:	17	Q Do you include cornstarch as a talcum
18	Objection to form. Asked and answered.	18	powder product?
19	A So my my review included a number of	19	MS. O'DELL:
20	studies that looked at exposure rates, and my	20	Object to the form.
21	review also included the review of some studies	21	A Cornstarch was included in some of the
22	that did not include use frequency as well as use	22	epidemiology studies, as you as you mentioned
23	duration. And, so, both of those considerations	23	a moment ago.
24	in terms of my review of the epidemiology were	24	MS. BROWN:
	Page 147		Page 149
1	undertaken, but I did not attempt to quantify	1	Q Do you consider cornstarch to be a
2	those relationships specifically.	2	talcum powder product that also causes
3	MS. BROWN:	3	inflammation?
4	Q Okay. So there's two different issues	4	MS. O'DELL:
5	there that I want to ask you about. One, I want	5	Object to the form.
6	to talk to you about whether the talcum powder	6	A My my review of the literature
7	products you've described on page 17 of your	7	doesn't I'm thinking through the available
8	report have a specific composition, in your mind.	8	studies, and I don't recall which studies that
9	Okay?	9	may may have been a dependent variable in
10	Two, I want to talk to you about what	10	terms of the determination. So I I can't
11	you were just answering, which is is there a	11	answer that. I I don't have the information
12	specific amount of the product that you believe	12	to answer that accurately.
13	causes inflammation.	13	MS. BROWN:
14	Do you understand the difference?	14	Q So, sitting here today, you're not sure
	A I do.	15	if cornstarch would be a talcum powder product
15			
16	MS. O'DELL:	16	that causes inflammation as you described on page
16 17	MS. O'DELL: Objection to form.	17	17?
16 17 18	MS. O'DELL: Objection to form. MS. BROWN:	17 18	17? MS. O'DELL:
16 17 18 19	MS. O'DELL: Objection to form. MS. BROWN: Q Okay. So let's start, one, with the	17 18 19	17? MS. O'DELL: Objection.
16 17 18 19 20	MS. O'DELL: Objection to form. MS. BROWN: Q Okay. So let's start, one, with the product. In forming the opinion that talcum	17 18 19 20	17? MS. O'DELL: Objection. A No. So
16 17 18 19 20 21	MS. O'DELL: Objection to form. MS. BROWN: Q Okay. So let's start, one, with the product. In forming the opinion that talcum powder products cause inflammation, is there a	17 18 19 20 21	17? MS. O'DELL: Objection. A No. So MS. O'DELL:
16 17 18 19 20 21 22	MS. O'DELL: Objection to form. MS. BROWN: Q Okay. So let's start, one, with the product. In forming the opinion that talcum powder products cause inflammation, is there a particular chemical composition that you are	17 18 19 20 21 22	17? MS. O'DELL: Objection. A No. So MS. O'DELL: Misstates the testimony.
16 17 18 19 20 21	MS. O'DELL: Objection to form. MS. BROWN: Q Okay. So let's start, one, with the product. In forming the opinion that talcum powder products cause inflammation, is there a	17 18 19 20 21	17? MS. O'DELL: Objection. A No. So MS. O'DELL:

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	Page 150		Page 152
1	A So corn cornstarch and and talcum	1	on knowledge of how much talcum powder is
2	powder are are when I'm referring to talcum	2	actually in the product; correct?
3	powder and talcum powder products, cornstarch, as	3	MS. O'DELL:
4	a singular component or singular product, is	4	Objection. Misstates his testimony.
5	not included in that definition.	5	A Again, not a it wasn't part of it
6	Now, whether products that contain talc	6	wasn't an opinion I was asked to provide.
7	also contain cornstarch, I I'm not able to	7	The the only or, I should say,
8	say.	8	a a study that looked at the summarizing
9	MS. BROWN:	9	the epidemiology literature that I reviewed, some
10	Q Right. And so that's my question.	10	of those studies had a duration and component as
11	What about a product like Shower to Shower that	11	far as general talcum powder and talcum powder
12	contains talc and cornstarch? How have	12	product use.
13	you what methodology have you employed to	13	MS. BROWN:
14	arrive at the conclusion that the Shower to	14	Q And I want to
15	Shower product causes inflammation?	15	A I don't
16	MS. O'DELL:	16	MS. O'DELL:
17	Object to the form.	17	Excuse me. Let him finish.
18	A So my what I was requested was to	18	A I was I was going to say I don't
19	write an opinion as to the, again, the	19	recall those quantitating the percentage of
20	biologically plausible mechanism that exposure to	20	talcum powder in a in a given product in the
21	talc and its constituents can lead to	21	study.
22	inflammation.	22	MS. BROWN:
23	I wasn't asked to provide as to what	23	Q Right. And, so, you're getting a
24	the minimum or maximum thresholds are of any	24	little into the second question, which I do want
	Dage 151		
	Page 151		Page 153
1	product or of any component of that product or	1	to talk about, which is how much people are
2	product or of any component of that product or constituent.	1 2	to talk about, which is how much people are exposed to.
	product or of any component of that product or constituent. The information I was provided was the	2	to talk about, which is how much people are exposed to. But sticking with just what's in the
2 3 4	product or of any component of that product or constituent. The information I was provided was the analysis of products like Shower to Shower and	2 3 4	to talk about, which is how much people are exposed to. But sticking with just what's in the product, have you made a determination that there
2 3 4 5	product or of any component of that product or constituent. The information I was provided was the analysis of products like Shower to Shower and Johnson & Johnson's product, to evaluate the	2 3 4 5	to talk about, which is how much people are exposed to. But sticking with just what's in the product, have you made a determination that there is a threshold amount of talcum powder that is
2 3 4 5 6	product or of any component of that product or constituent. The information I was provided was the analysis of products like Shower to Shower and Johnson & Johnson's product, to evaluate the spectrum of talc and asbestos contamination in	2 3 4 5 6	to talk about, which is how much people are exposed to. But sticking with just what's in the product, have you made a determination that there is a threshold amount of talcum powder that is required to be in a product before you can
2 3 4 5 6 7	product or of any component of that product or constituent. The information I was provided was the analysis of products like Shower to Shower and Johnson & Johnson's product, to evaluate the spectrum of talc and asbestos contamination in some of the constituent components, and then	2 3 4 5 6 7	to talk about, which is how much people are exposed to. But sticking with just what's in the product, have you made a determination that there is a threshold amount of talcum powder that is required to be in a product before you can conclude that that product will cause chronic
2 3 4 5 6 7 8	product or of any component of that product or constituent. The information I was provided was the analysis of products like Shower to Shower and Johnson & Johnson's product, to evaluate the spectrum of talc and asbestos contamination in some of the constituent components, and then and, therefore, develop an opinion as to	2 3 4 5 6 7 8	to talk about, which is how much people are exposed to. But sticking with just what's in the product, have you made a determination that there is a threshold amount of talcum powder that is required to be in a product before you can conclude that that product will cause chronic inflammation?
2 3 4 5 6 7 8	product or of any component of that product or constituent. The information I was provided was the analysis of products like Shower to Shower and Johnson & Johnson's product, to evaluate the spectrum of talc and asbestos contamination in some of the constituent components, and then and, therefore, develop an opinion as to the whether or not that those products are	2 3 4 5 6 7 8	to talk about, which is how much people are exposed to. But sticking with just what's in the product, have you made a determination that there is a threshold amount of talcum powder that is required to be in a product before you can conclude that that product will cause chronic inflammation? MS. O'DELL:
2 3 4 5 6 7 8 9	product or of any component of that product or constituent. The information I was provided was the analysis of products like Shower to Shower and Johnson & Johnson's product, to evaluate the spectrum of talc and asbestos contamination in some of the constituent components, and then and, therefore, develop an opinion as to the whether or not that those products are supported by the same mechanism that I developed	2 3 4 5 6 7 8 9	to talk about, which is how much people are exposed to. But sticking with just what's in the product, have you made a determination that there is a threshold amount of talcum powder that is required to be in a product before you can conclude that that product will cause chronic inflammation? MS. O'DELL: Objection to form. Asked and answered.
2 3 4 5 6 7 8 9 10	product or of any component of that product or constituent. The information I was provided was the analysis of products like Shower to Shower and Johnson & Johnson's product, to evaluate the spectrum of talc and asbestos contamination in some of the constituent components, and then and, therefore, develop an opinion as to the whether or not that those products are supported by the same mechanism that I developed the opinion on, meaning they have the constituent	2 3 4 5 6 7 8 9 10	to talk about, which is how much people are exposed to. But sticking with just what's in the product, have you made a determination that there is a threshold amount of talcum powder that is required to be in a product before you can conclude that that product will cause chronic inflammation? MS. O'DELL: Objection to form. Asked and answered. A I again, I wasn't asked to provide
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39 (Pages 150 to 153)

	Page 154		Page 156
1	fragrances, and any contaminating substances,	1	exposure to inflammation to the initiation of
2	such as asbestos or or heavy metals.	2	core progression of cancer. And that's that's
3	And, so, therefore, to to more to	3	been the focus of my opinion.
4	answer to be able to answer your question	4	MS. BROWN:
5	accurately, we would I think we would have to	5	Q Have you attempted to quantify talc
6	have some discussions as to the type of talcum	6	exposure as it relates to individuals?
7	powder and the level of exposure to be able to	7	A No, I have not.
8	answer that regarding my opinion in terms of	8	Again, my my opinions are primarily
9	level.	9	limited to the to the biological mechanism.
10	You know, the to clarify, the	10	Q Well, isn't that dependent, though, on
11	during this research and the and having the	11	how much talc a person is exposed to?
12	opportunity to review much of the literature in	12	MS. O'DELL:
13	talcum powder, it's a it's a fascinating field	13	Objection.
14	because it is similar to asbestos. It appears	14	A No. Again, separating the so the
15	that the diversity of products and the diversity	15	question of the mechanism is
16	of talc sources are like having a thorn bush with	16	Can an exposure result in a mechanism
17	different size thorns, and, depending on the	17	is separate from how much of an exposure is
18	constituent components, you know, those thorns	18	required to cause that mechanism.
19	are bigger or smaller or otherwise. And but	19	MS. BROWN:
20	my opinion is based on the fact that the presence	20	Q So you've identified two questions for
21	of any of those thorns is sufficient to cause	21	us. One, can exposure result in a mechanism.
22	some inflammatory response.	22	Correct?
23	MS. BROWN:	23	A (Nods affirmatively.)
24	Q Does a talcum powder product with 10	24	Q And, two, how much of an exposure do
	Page 155		
	rage 155		Page 157
1	percent talc cause chronic inflammation, in your	1	you need to produce a mechanism. Correct?
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	Page 158		Page 160
1	and paraphrase or opine on their work.	1	epidemiology studies found that conclusion and,
2	MS. BROWN:	2	as as reviewed in the report, you know, found
3	Q Do you believe	3	an increased risk with increasing increasing
4	MS. O'DELL:	4	exposure appears, with the current knowledge in
5	Excuse me. We've been going about an	5	the literature, to increase risk. But my opinion
6	hour and 15 minutes. I'd love to take a break in	6	was not to further quantify or further describe
7	the next two or three minutes and	7	that.
8	MS. BROWN:	8	MS. BROWN:
9	It will probably take me a little	9	Q Many of the studies you looked at did
10	longer than that, but I'm mindful of the time,	10	not show a dose response; correct?
11	and I'll just finish this subject and take a	11	MS. O'DELL:
12	break	12	Objection to form.
13	MS. O'DELL:	13	A The limitation of several of the
14	Well, Dr. Levy, would you like a break	14	studies I reviewed was that they did not examine
15	now?	15	a dose response, so that, therefore, the study
16	THE WITNESS:	16	was unable unable to make that conclusion
17	I think we can finish this subject.	17	because they didn't look.
18	MS. BROWN:	18	MS. BROWN:
19	Thank you.	19	Q And some of the studies that did
20	THE WITNESS:	20	attempt to look at duration and/or frequency did
21	I I'd rather conclude it than break	21	not show a linear dose response. Correct?
22	it up.	22	A I would have to look at the specific
23	MS. BROWN:	23	studies. But in in summary, studies that did
24	Q So, Doctor, as it relates to how much	24	look at dose response, particularly more recent
1	talc is needed to cause inflammation that can	1	studies with larger numbers of participants, the
2	cause cancer, that wasn't what you were asked to	2	meta-analysis studies, found a significant
3	figure out in this case. Is that right?	3	relationship between duration of use as well as
4	MS. O'DELL:	4	frequency of use in terms of their their risk
5	Objection to form.	5	ratios.
6	A No. Well, I I was I was asked to	6	Q And you are not going to offer the
7	provide a review of the literature in terms of	7	opinion in this case that a woman using Johnson's
8	talc exposure and inflammation and, in that	8	Baby Powder products perineally is exposed to
9	review, identified a number of studies that	9	enough talcum powder to cause chronic
10	examined some relationships to dose.	10	inflammation that can cause cancer. True?
11	But I as you as you see in my	11	MS. O'DELL:
12	conclusions, none of them speak to dose or	12	Object to the form.
13	duration in terms of that of that mechanism.	13	A I I wasn't asked to to provide
14	MS. BROWN:	14	that opinion.
15	Q You are not offering an opinion in this	15	MS. BROWN:
16	case, Doctor, that perineal use of talcum powder	16	Q And so, as such, you haven't attempted
17	exposes an individual to enough talc to cause	17	to quantify how much talcum powder, as used
	· ·	18	perineally, might get to the ovary. Is that
	chronic inflammation than can cause cancer		permeany, impire get to the Ovary. To that
18	chronic inflammation than can cause cancer;		fair?
18 19	correct?	19	fair? A Again wasn't wasn't asked I was
18 19 20	correct? MS. O'DELL:	19 20	A Again, wasn't wasn't asked. I was
18 19 20 21	correct? MS. O'DELL: Objection to form.	19 20 21	A Again, wasn't wasn't asked. I was able to review some of the literature that
18 19 20 21 22	correct? MS. O'DELL: Objection to form. A My review of studies that attempted to	19 20 21 22	A Again, wasn't wasn't asked. I was able to review some of the literature that is appears to be long longstanding, well
18 19 20 21	correct? MS. O'DELL: Objection to form.	19 20 21	A Again, wasn't wasn't asked. I was able to review some of the literature that

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Page 162 Page 164 statement is -- is describing it as inarguable --1 1 talc has to reach the ovary for the chronic 2 that talc can migrate either from perineal 2 inflammation to occur. Is that right? 3 3 exposure or even from inhalation exposure and be MS. O'DELL: 4 found in the ovary. 4 Objection. 5 A quantitation of how much exposure is 5 Not -- specific to your question, 6 required for that migration to occur and -- or 6 chronic inflammation, no, not necessarily. 7 how many times of exposure that migration needs 7 MS. BROWN: 8 to occur, I think it's been a fairly wide 8 Is it your opinion in this case, 9 9 diversity of -- of studies on that subject. Doctor, that a woman can develop ovarian cancer 10 And, so, based on that, I'm not able to 10 from chronic inflammation from talc without any 11 11 particle of talc ever reaching the ovary? offer an opinion as to a minimal or maximum dose 12 12 MS. O'DELL: required to get there, other than -- but, 13 13 instead, state that there is enough evidence to Objection to form. No, I didn't -- I -- I certainly did 14 say factually that migration through the -- or 14 15 through at least two mechanisms of exposure, talc 15 not make that statement. And the --16 can be found in the ovary. And I would suggest 16 Again, restating the -- this summary of 17 that -- or I'm not aware of any study that 17 my -- my opinion, that the biologically plausible 18 quantitates that further. 18 mechanism for talc exposure to inflammation to 19 19 Is it essential to your opinion that cellular damage and then potentially creating the 20 20 talc causes chronic inflammation that can lead to correct environment is based on evidence showing 21 21 ovarian cancer that some amount of talc be talc exposure in the ovary. 2.2 present in the actual ovary? 2.2 MS. BROWN: 23 MS. O'DELL: 23 Okay. So critical to your opinion, 24 Object to the form. 24 then, some talc has to get to the ovary at some Page 163 Page 165 1 So my -- my -- my opinion regarding the 1 time; right? 2 biologically plausible mechanism, again, does not 2 Well, the -- again, the -- my opinion 3 3 rely on duration of exposure or amount of is not based on how talc migrates or -- or when 4 4 exposure. it can migrate. It's simply based on the, again, 5 5 So, therefore, I would -- I would that biological premise, that exposure to talc. 6 6 answer your question directly that it would be So I wasn't asked to opine whether or 7 no, it does not -- it would not necessarily 7 not talc exposure in a neighboring tissue could 8 8 require talc to be present at the ovary at any cause enough of an inflammatory response to 9 given time point for there to be the potential 9 affect the ovary. 10 that she had some inflammatory injury due to talc 10 So there is the, certainly, the 11 11 exposure at a previous time. uninvestigated secondary effects that perhaps 12 12 That would, of course, be two different talc did not -- is not necessary or -- and 13 questions, one being effect of exposure and 13 required to get to the ovary to cause that 14 second question being is there clearance of that 14 effect. I'm -- I'm just not aware of any studies 15 exposure over time if use is discontinued. 15 that have made that delineation of talc exposure 16 So that's, again, two different -- two 16 to neighboring or surrounding organs. 17 17 very different scientific studies would be --There is limited or some suggestion 18 would be necessary. 18 regarding the inflammatory response related to 19 MS. BROWN: 19 talc exposure in the lung that suggests that any 20 And you have not undertaken either of 20 talc exposure causes an inflammatory response. 21 those studies. Is that fair? 21 Again, but I can't point you to evidence that 22 That's fair. 22 would take that inflammatory response and tie it Α 23 Q And -- but essential to your theory, 23 specifically to ovarian cancer. 24 though, Doctor, at some point, some amount of 24 So, again, my answer is there is not

2 a a 3 c c 4 c c 5 t c c c c c c c c c c c c c c c c	enough evidence to to support nor refute that any tale exposure can lead to an increased risk of ovarian cancer. What I do know from my review of the literature is the studies that looked at that specific exposure And, to be clear, none of the epidemiology studies in humans quantitated the amount of tale reaching the ovary. It was simply the exposure and the and the perineal use of tale. So I think any discussion about how much did it reach the ovary and how long was it in the ovary is all hypothetical. Q Why don't we go off the record and take a break. Thank you, Doctor. VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	by well-established biological facts? A I would say the that chronic inflammation as a component of causing ovarian cancer is well established by biologically plausible facts. Q And what are those facts? A I think a number of studies that include the, first, the that talc or talcum powder causes inflammation. These exist in a number of forms, including very recent recent research by Dr. Saed, as we were touched on a little bit earlier in the in his paper, as well as classical studies with talc pleurodesis where there's you know, the fundamentals of that treatment is the inflammatory response caused by talc. Q Uh-huh.
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7 e e 8 a a 9 ti 10 ti 11 ci 12 ci 13 ci 14 a a 15 16 17 18 11 19 20 V 21 22 1 23 M	epidemiology studies in humans quantitated the amount of talc reaching the ovary. It was simply the exposure and the and the perineal use of talc. So I think any discussion about how much did it reach the ovary and how long was it in the ovary is all hypothetical. Q Why don't we go off the record and take a break. Thank you, Doctor. VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	7 8 9 10 11 12 13 14 15 16 17	A I think a number of studies that include the, first, the that talc or talcum powder causes inflammation. These exist in a number of forms, including very recent recent research by Dr. Saed, as we were touched on a little bit earlier in the in his paper, as well as classical studies with talc pleurodesis where there's you know, the fundamentals of that treatment is the inflammatory response caused by talc. Q Uh-huh.
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10 to 11 do 12 do 13 do 14 do 15 do 17 do 18 do 19 do	talc. So I think any discussion about how much did it reach the ovary and how long was it in the ovary is all hypothetical. Q Why don't we go off the record and take a break. Thank you, Doctor. VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	10 11 12 13 14 15 16 17	number of forms, including very recent recent research by Dr. Saed, as we were touched on a little bit earlier in the in his paper, as well as classical studies with talc pleurodesis where there's you know, the fundamentals of that treatment is the inflammatory response caused by talc. Q Uh-huh.
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12	ovary is all hypothetical. Q Why don't we go off the record and take a break. Thank you, Doctor. VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	12 13 14 15 16 17	little bit earlier in the in his paper, as well as classical studies with talc pleurodesis where there's you know, the fundamentals of that treatment is the inflammatory response caused by talc. Q Uh-huh.
13 (14 a) 15 16 N 17 18 19 20 N 21 22 1 N	Q Why don't we go off the record and take a break. Thank you, Doctor. VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	13 14 15 16 17 18	well as classical studies with talc pleurodesis where there's you know, the fundamentals of that treatment is the inflammatory response caused by talc. Q Uh-huh.
14 a a 15 16 N 17 18 19 20 N 21 22 1 23 M	a break. Thank you, Doctor. VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	14 15 16 17 18	well as classical studies with talc pleurodesis where there's you know, the fundamentals of that treatment is the inflammatory response caused by talc. Q Uh-huh.
15 16 V 17 18 I 19 20 V 21 22 I 23 M	a break. Thank you, Doctor. VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	15 16 17 18	where there's you know, the fundamentals of that treatment is the inflammatory response caused by talc. Q Uh-huh.
16 V 17 18 1 19 20 V 21 22 1 23 M	VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	16 17 18	that treatment is the inflammatory response caused by talc. Q Uh-huh.
17 18 1 19 20 V 21 22 1 23 M	VIDEOGRAPHER: Going off the record. The time is 11:51 a.m. (LUNCH RECESS.)	17 18	caused by talc. Q Uh-huh.
18 1 19 20 V 21 22 1 23 M	11:51 a.m. (LUNCH RECESS.)	18	Q Uh-huh.
19 20 V 21 22 I 23 M	11:51 a.m. (LUNCH RECESS.)		
20 V 21 22 I 23 M		10	A And, so, that would be the some of
21 22 1 23 N			the two examples of where factual information
22 1 23 N	VIDLOGICH TILK.	20	or at least observations that are supportive
23 N	We're back on the record. The time is	21	of of that information, you know, being
23 N	12:52 p.m.	22	considered as a bio part of a biologically
	MS. BROWN:	23	plausible mechanism.
	Q Welcome back, Doctor.	24	Q You would agree, Doctor, that not all
	Page 167		Page 169
1	You were asked in this case to assess	1	inflammation causes cancer; correct?
	whether perineal use of talcum powder products	2	A I would say inflammation is not
3 i	induces a biologically plausible mechanism or	3	singularly responsible for cancer. However, I
4 1	mechanisms that result in ovarian cancer.	4	would clarify that the progression from cellular
5	Correct?	5	transformation to malignant cancer, at least with
6	A Correct.	6	our current understanding of cancer biology,
	Q And define for us, if you will,	7	appears to have an inflammatory requirement,
8	"biologically plausible mechanism" as you used it	8	meaning that all cases of chronic inflammation
9 i	in that sentence.	9	don't necessarily cause cancer. However, our
	A Excuse me. A mechanism that is	10	understanding of malignant transformation appears
	biologically plausible, I mean that it is	11	to have, universally, an inflammatory component.
	supported by either well-established biological	12	Q Okay. You would agree, though, that
	facts or supported by at least a single line of	13	not all types of inflammation that the body
	evidence in published literature you know,	14	experiences is inflammation that will lead to
	generally speaking, peer-reviewed literature but	15	cancer. Correct?
	certainly not limited to that where when you	16	MS. O'DELL:
	take when you consider the totality of the	17	Object to the form.
	mechanism, that, essentially, each of the steps	18	A So I would taking a step back
	makes sense and is is supported by through	19	and and or to orient us to some of the
20	either direct or indirect observations.	20	basis of my opinions and some statements on
	Q Okay. And, in this case, as it relates	21	general cancer biology
	to talcum powder, do you believe that the	22	MS. BROWN:
	biologically plausible mechanism of chronic	23	Q Well, let's start with just the
24 i	inflammation causing ovarian cancer is supported	24	question, though, Doctor.

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1	A Okay.	1	cause cancer. The you need a contribution of
2	Q Okay. Let's just keep it to an answer	2	other factors. And what those factors are is
3	to the question. And then if you need an	3	some are understood. Some are areas of active
4	opportunity to make another statement on the	4	research.
5	record, that's fine.	5	In the in the specific case of
6	MS. O'DELL:	6	ovarian cancer, it does appear, given the
7	Excuse me. Just object to the	7	late given the observations about latency
8	direction of the witness.	8	period, that some level of chronic inflammation
9	Dr. Levy, you can answer a question	9	appears to be critical, but there is no
10	however you'd like.	10	definition of it being required to then having
11	MS. BROWN:	11	acute inflammation, again, in summary, causing
12			
13	Q And, just to orient you, Doctor, what	12	cellular damage and then chronic inflammation
	I'm after, the question was: Not all	13	providing a a supportive environment for that
14	inflammation that takes place in the body is	14	transformation.
15	inflammation that leads to cancer; correct?	15	And, again, I'm I'm generalizing,
16	MS. O'DELL:	16	which, as we discussed earlier in the day, cancer
17	Object to the form.	17	is very complex, and so we have to be cautious
18	A So that, yeah, it's really too general	18	with generalizations.
19	a question. So you're you're what you're	19	Q Talc pleurodesis is a medical procedure
20	asking is does all inflammation have the	20	by which talc is injected into the pleura;
21	potential to have have a relationship to	21	correct?
22	cancer, and the answer to that is is yes, it	22	A Correct.
23	does.	23	Q And it is done that purposefully to
24	Now, does every inflammatory response	24	elicit an inflammatory response. Correct?
	Page 171		Page 173
1	directly cause cancer? And that's a question	1	A That's correct.
2	that I would say would be reasonable to in	2	Q And have you looked in consid
3	layperson's terms, in terms of general	3	forming your opinions in this case at the body of
4	inflammation, is unlikely.	4	epidemiology that has followed folks who received
5	But there their distinction	5	talc pleurodesis to see if they developed cancer?
6	between is you know, stated simply, is	6	MS. O'DELL:
7	inflammation is a by our current knowledge of	7	Object.
8	cancer, is a necessary component of cancer	8	A Somewhat, yes.
9	progression. That does not equate to all	9	MS. BROWN:
10	inflammation causing cancer.	10	Q And are you familiar with the findings
11	MS. BROWN:	11	of those studies that tale, when injected
12	Q Does acute inflammation cause cancer,	12	directly into the pleura for the purpose of
13	in your mind, Doctor?	13	causing inflammation, had not caused cancer?
14	A It is a component of the cancer	14	MS. O'DELL:
15	progression process. And, so, in my to	15	Object to the form.
16		16	-
	provide a simplistic distinction between them is		A I would disagree with your conclusions.
17	a	17	And, in fact, the literature I reviewed has, I
18	Acute inflammation which results in	18	think, two fundamental concerns. One is the time
19	either an inflammatory response or direct	19	period that these patients were followed post
20	cellular insult or injury can be viewed as having	20	pleurodesis, and the other that there there
21	a causing cellular damage that results	21	have been at least one report, perhaps two I
22	in in cellular transformation.	22	would have to review to make sure I'm speaking
23	Now, that is not sufficient for that	23	accurately where there was indeed a
24	for those transformed cells to then go on to	24	asbestos-like response in the formation of a

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1	mesothelioma-like event in the in the in	1	mid-'80s to early '90s. I'd have to, again, have
2	the pleural space following talc pleurodesis.	2	to review that
3	However, you know, taking a step back,	3	I gave that specific example of a
4	given the relative rarity of that as a procedure,	4	patient or cohort of patients that were found to
5	particularly today, I think drawing conclusions	5	have, again, asbestos-like effects in the lung
6	from that as its as its relationship to cancer	6	leading to, at least in a case or more than
7	would be difficult, but I I do think	7	perhaps more than one case, a mesothelioma-like
8	fundamentally the my use of that as an example	8	effect like we like I just mentioned.
9	was not necessarily to tie talc specifically to	9	But, again, to point you to the exact
10	cancer. It was more to state that it's well	10	reference, I'd have to review.
11	established that platy talc individually as it	11	MS. BROWN:
12	used in those procedures causes an inflammatory	12	Q Are you relying on that reference in
13	response. And so, you know and that is the	13	forming your opinions in this case?
14	primary reason I used or reviewed that literature	14	A No. Specifically again, to restate
15	for that purpose.	15	the my description of the pleurodesis process
16	MS. BROWN:	16	was to support the early part of the biological
17	Q Is it your opinion, Doctor, that talc	17	mechanism that talc causes inflammation. So
18	pleurodesis leads to cancer?	18	that and, so, in the lung as a tissue, that
19	MS. O'DELL:	19	progression to cancer is is I think is a
20	Object to the form.	20	is a is a supportive observation to the to
21	A It is my opinion that talc pleurodesis	21	my overall principle. But, again, it's a
22	creates an environment supportive of cancer. And	22	separate separate exposure type, certainly a
23	whether or not some number of individuals may	23	very different dosing, potentially, and, again, a
24	progress, could progress or have progressed to	24	very different patient, or the patient is a very
	Page 175		Page 177
1		1	
1 2	cancer is you know, is is of limited	1 2	different individual in the sense that they
1 2 3	cancer is you know, is is of limited knowledge right now.	l .	different individual in the sense that they obviously have reasons for going through the talc
2	cancer is you know, is is of limited knowledge right now. MS. BROWN:	2	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are
2 3	cancer is you know, is is of limited knowledge right now. MS. BROWN: Q What scientific support do you have for	2	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are potentially compounding to the overall phenotype.
2 3 4	cancer is you know, is is of limited knowledge right now. MS. BROWN: Q What scientific support do you have for your opinion that talc pleurodesis creates an	2 3 4	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are potentially compounding to the overall phenotype. Q Have you endeavored to quantify the
2 3 4 5	cancer is you know, is is of limited knowledge right now. MS. BROWN: Q What scientific support do you have for your opinion that talc pleurodesis creates an environment supportive of cancer?	2 3 4 5	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are potentially compounding to the overall phenotype.
2 3 4 5 6	cancer is you know, is is of limited knowledge right now. MS. BROWN: Q What scientific support do you have for your opinion that talc pleurodesis creates an environment supportive of cancer?	2 3 4 5 6	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are which are potentially compounding to the overall phenotype. Q Have you endeavored to quantify the difference between exposure to talc from
2 3 4 5 6 7	cancer is you know, is is of limited knowledge right now. MS. BROWN: Q What scientific support do you have for your opinion that talc pleurodesis creates an environment supportive of cancer? A Oh, just that it causes an inflammatory response. And, as we've been discussing, there	2 3 4 5 6 7	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are which are potentially compounding to the overall phenotype. Q Have you endeavored to quantify the difference between exposure to talc from pleurodesis versus perineal use of cosmetic
2 3 4 5 6 7 8	cancer is you know, is is of limited knowledge right now. MS. BROWN: Q What scientific support do you have for your opinion that talc pleurodesis creates an environment supportive of cancer? A Oh, just that it causes an inflammatory response. And, as we've been discussing, there is ample evidence surrounding the role of	2 3 4 5 6 7 8	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are which are potentially compounding to the overall phenotype. Q Have you endeavored to quantify the difference between exposure to talc from pleurodesis versus perineal use of cosmetic talcum powder products?
2 3 4 5 6 7 8 9	cancer is you know, is is of limited knowledge right now. MS. BROWN: Q What scientific support do you have for your opinion that talc pleurodesis creates an environment supportive of cancer? A Oh, just that it causes an inflammatory response. And, as we've been discussing, there	2 3 4 5 6 7 8	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are which are potentially compounding to the overall phenotype. Q Have you endeavored to quantify the difference between exposure to talc from pleurodesis versus perineal use of cosmetic talcum powder products? MS. O'DELL:
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	cancer is you know, is is of limited knowledge right now. MS. BROWN: Q What scientific support do you have for your opinion that talc pleurodesis creates an environment supportive of cancer? A Oh, just that it causes an inflammatory response. And, as we've been discussing, there is ample evidence surrounding the role of inflammation in cancer. There's a you know, in a number of both reference studies and I think generally, I would I would state that it's a generally accepted fact in cancer biology. Q What scientific support do you have for your opinion that talc pleurodesis patients later can and do develop cancer? MS. O'DELL: Object to the form. Misstate his testimony. A I'd have to review my review some of the literature. And I can take a look if we want to pause for a moment.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	different individual in the sense that they obviously have reasons for going through the talc pleurodesis which are which are which are potentially compounding to the overall phenotype. Q Have you endeavored to quantify the difference between exposure to talc from pleurodesis versus perineal use of cosmetic talcum powder products? MS. O'DELL: Object to the form. A I have I have not attempted to delineate those two simply from the perspective that, again, to the biological mechanism, the initial premise is talc causes inflammation. And when I examined literature to look for evidence of that historically, talc pleurodesis is one example of inflammation. There's now others, and there's, subsequent to that, there's been a now a number of or, you know, probably a Dr. Saed is one example of a reasonably comprehensive molecular study examining specific

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Shawn Levy, Ph.D.

specific products, you know, such as the Shower to Shower and the and baby powder. MS. BROWN: Q Do you believe the inflammation caused by talc pleurodesis is chronic inflammation that leads to cancer? MS. O'DELL: Objection to form. Asked and answered. A Again, I believe the inflammatory	1 2 3 4 5 6	powder products cause chronic inflammation in your November 2018 report before having seen the Saed paper from 2018; correct? MS. O'DELL: Object object to the form.
to Shower and the and baby powder. MS. BROWN: Q Do you believe the inflammation caused by tale pleurodesis is chronic inflammation that leads to cancer? MS. O'DELL: Objection to form. Asked and answered.	3 4 5 6	Saed paper from 2018; correct? MS. O'DELL:
4 Q Do you believe the inflammation caused 5 by talc pleurodesis is chronic inflammation that 6 leads to cancer? 7 MS. O'DELL: 8 Objection to form. Asked and answered.	4 5 6	MS. O'DELL:
 by talc pleurodesis is chronic inflammation that leads to cancer? MS. O'DELL: Objection to form. Asked and answered. 	5 6	
6 leads to cancer? 7 MS. O'DELL: 8 Objection to form. Asked and answered.	6	Object object to the form
7 MS. O'DELL: 8 Objection to form. Asked and answered.		
8 Objection to form. Asked and answered.	-	Misstates his testimony.
•	7	A The so, as we discussed we
9 A Again, I believe the inflammatory	8	discussed earlier, I had seen abstract
- 11 11guin, 1 cone to the initialinately	9	information as well as earlier publication from
10 response to talc exposure, which would include	10	Dr. Saed's group and that the current 2018 paper,
talc pleurodesis, induces an inflammatory	11	while not necessary for the opinions described in
response that would be supportive of cancer	12	the report, certainly support those opinions,
13 development and/or progression.	13	given that it was a direct assessment of specific
14 MS. BROWN:	14	products, specific in specific doses applied
15 Q And what scientific literature other	15	to cellular material and then measurements for
than the one study you just referenced for us do	16	inflammation made directly on that material.
you rely on for your opinion that talc	17	So while that particular study was
pleurodesis induces an inflammatory response that	18	not
19 would be supportive of cancer development and/or	19	And, again, the the earlier studies
20 progression?	20	that were used to inform the 2018 paper were
21 MS. O'DELL:	21	certainly used in this report and referenced
Object to the form.	22	the
23 A All my my opinion is based on	23	And I'm just recalling when. Or if
24 connecting two basic concepts. Talc exposure	24	we've refer had the opportunity to reference
Page 179		Page 181
1 causes inflammation. Inflammation has a	1	the
2 significant role in cancer development.	2	Yeah. So we reference primarily the
3 And, so, as far as each of those is	3	abstracts and then, again, as well as some of the
4 supported by individual individual studies,	4	other Saed work, which is the foundation of the
5 and and now as I mentioned, there are now	5	directed studies that are described in the
6 studies that directly tie those together in	6	Reproductive Sciences paper that is Exhibit 12.
7 observation.	7	MS. BROWN:
8 MS. BROWN:	8	Q Do you know that Dr. Saed is a paid
9 Q What is the scientific basis for your	9	expert for the plaintiffs' lawyers in this
support that talc exposure causes the type of	10	litigation?
inflammation that has been linked to cancer?	11	A I am aware. Yes.
12 A The most recent is the Saed publication	12	Q Have you considered that fact in
that we discussed and or at least has been	13	evaluating Dr. Saed's work?
14 mentioned. In that study, looking at there	14	A I did.
was a assessment and, in some cases, a	15	Q Other than Dr. Saed's work from 2017
quantitation of the specific molecular markers	16	and 2018, what evidence are you relying on to
for inflammation that were induced, and many	17	support your opinion that talcum powder produces
10 0 01 1 1 1 1 1 1	18	the type of inflammation that can lead to cancer?
of some of those markers are shared with known	19	A There has been looking through
19 markers for for cancer progression, such as		the there's the Buz'Zard and Lau, 2007. We
markers for for cancer progression, such as CA 125, as well as others.	20	
19 markers for for cancer progression, such as 20 CA 125, as well as others. 21 Q Are you referring to Saed's 2018 paper,	20 21	were discussing the Hamilton Hamilton paper in
markers for for cancer progression, such as CA 125, as well as others. Q Are you referring to Saed's 2018 paper, Dr. Levy?	20 21 22	were discussing the Hamilton Hamilton paper in terms of immune response but then, more
19 markers for for cancer progression, such as 20 CA 125, as well as others. 21 Q Are you referring to Saed's 2018 paper,	20 21	were discussing the Hamilton Hamilton paper in

46 (Pages 178 to 181)

	Page 182		Page 184
1	in reactive oxygen species generation	1	the details, and I there I am aware
2	THE COURT REPORTER:	2	of mentioned earlier the Woodruff or Woodford,
3	Wait a minute. You have to slow down	3	the earlier 1971 paper where I couldn't remember
4	when you read, please.	4	the author, is one of the earliest studies that I
5	MS. O'DELL:	5	came across that had it has an animal model
6	You may continue.	6	study.
7	A Just to before I left off, I think,	7	MS. BROWN:
8	in those mentioned references, the reactive	8	Q Doctor, is it your testimony that
9	oxygen species generation, increased cell	9	First of all, do you think it's that
10	proliferation, and the use of in the specific	10	in opining that there is a biologically plausible
11	case of Buz'Zard and Lau, was looking at the	11	mechanism by which talcum powder causes chronic
12	transformation in human ovarian cancer cells that	12	inflammation that can cause ovarian cancer, is it
13	were treated with talcum powder sorry human	13	necessary, in your mind, to be able to show in
14	ovarian cells treated with talcum powder.	14	animals that talcum powder does just that?
15	MS. BROWN:	15	A That talcum powder causes inflammation?
16	Q Other than Buz'Zard, Hamilton, and NTP,	16	Q That causes ovarian cancer.
17	is there anything else that you are relying on to	17	A No, I don't I don't think that
18	support your opinion that the inflammation caused	18	that's that's certainly not a requirement.
19	by talcum powder is the type of inflammation that	19	And the reason I the reason I give that answer
20	causes cancer?	20	is is quite simple; that there is a wide
21	A So there's additional references	21	diversity of animal model studies that have not
22	mentioned in the report; Gates, Belot, Harper and	22	been able to mimic specifically or correctly
23	Saed. And then, in addition to that, there was	23	human cancer for both both from a detection
24	a	24	and most often from a treatment perspective,
	D 102		
		1	D 10F
	Page 183		Page 185
1	Make sure I'm referring to the right	1	meaning that, fundamentally, humans and most
2	Make sure I'm referring to the right one.	2	meaning that, fundamentally, humans and most or at least the animal systems used as in
2 3	Make sure I'm referring to the right one. So those were the those were the	2 3	meaning that, fundamentally, humans and most or at least the animal systems used as in scientific modeling are different. Some of their
2 3 4	Make sure I'm referring to the right one. So those were the those were the primary references. And then, of course, there	2 3 4	meaning that, fundamentally, humans and most or at least the animal systems used as in scientific modeling are different. Some of their differences are due to different pathways, and
2 3 4 5	Make sure I'm referring to the right one. So those were the those were the primary references. And then, of course, there were supporting materials and other earlier-cited	2 3 4 5	meaning that, fundamentally, humans and most or at least the animal systems used as in scientific modeling are different. Some of their differences are due to different pathways, and others of the differences are due to actually,
2 3 4 5 6	Make sure I'm referring to the right one. So those were the those were the primary references. And then, of course, there were supporting materials and other earlier-cited work.	2 3 4 5 6	meaning that, fundamentally, humans and most or at least the animal systems used as in scientific modeling are different. Some of their differences are due to different pathways, and others of the differences are due to actually, you know, fundamental immune system differences.
2 3 4 5 6 7	Make sure I'm referring to the right one. So those were the those were the primary references. And then, of course, there were supporting materials and other earlier-cited work. But for the opinion regarding the type	2 3 4 5 6 7	meaning that, fundamentally, humans and most or at least the animal systems used as in scientific modeling are different. Some of their differences are due to different pathways, and others of the differences are due to actually, you know, fundamental immune system differences. Q The Hamilton article that you
2 3 4 5 6 7 8	Make sure I'm referring to the right one. So those were the those were the primary references. And then, of course, there were supporting materials and other earlier-cited work. But for the opinion regarding the type of inflammation that is caused by exposure to	2 3 4 5 6 7 8	meaning that, fundamentally, humans and most or at least the animal systems used as in scientific modeling are different. Some of their differences are due to different pathways, and others of the differences are due to actually, you know, fundamental immune system differences. Q The Hamilton article that you identified for me, we marked earlier in the
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	Page 186		Page 188
1	MS. BROWN:	1	Q So this article looked at talc that was
2	Q What evidence in Hamilton, Doctor, are	2	injected into animals and found no evidence of
3	you relying on to support your position that	3	changes that lead to cancer. Correct?
4	Hamilton showed neoplastic changes in animals	4	MS. O'DELL:
5	injected with talc?	5	Objection to form.
6	A Well, I'm not I'm not stating that	6	A Over the time period that they that
7	Hamilton specifically showed that.	7	the study was performed, they did they did
8	What I'm stating is that that there	8	not they did not report, and, in fact, as you
9	is a Hamilton study as an animal model system to	9	said, their statements are "no evidence of
10	make the conclusion that, in this animal model	10	cellular atypia or mitotic activity."
11	system, that talc or talcum powder does not or	11	MS. BROWN:
12	that causes or does not cause ovarian cancer is	12	Q So in opining, as you do in this case,
13	not it's it is it has limitations.	13	that talcum powder can biologically induce
14	And, as we discussed a bit earlier, the	14	chronic inflammation that causes ovarian cancer,
15	two limitations are the very limited time points	15	what methodology did you employ to consider the
16	of the animals. And if we look at the relative	16	findings of the Hamilton article?
17	and observed time points that we know now, as far	17	A Well, I considered the findings of the
18	as latency period, these are well short of	18	Hamilton article, as as referenced in the
19	those of those periods, even by rat standards,	19	report, primarily showing that talc has an
20	and then the number of treated animals is	20	inflammatory or an immune response. And that was
21	relatively small at ten. So the	21	the primary inclusion of the of the Hamilton
22	Q Doctor, do you rely on the Hamilton	22	paper.
23	article to support your opinion that talcum	23	Q Not all inflammatory or immune
24	powder produces chronic inflammation that causes	24	responses lead to cancer; right?
	Page 187		Page 189
1	ovarian cancer?	1	MS. O'DELL:
2	ovarian cancer? A No, I don't rely again, I don't rely	2	MS. O'DELL: Objection. Asked and answered.
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1 2 3 4	particular study performed in the early '80s. And, furthermore, rat the rat model	1 2	Q Did you review, Doctor, the And and what about the findings of
3 4		2	And and what about the findings of
4			And and what about the midnigs of
	for human cancer, since this study has been in	3	NTP support your opinion?
	other cases, has some limitations as it relates	4	A Well, first, the inflammatory response,
5	to how applicable it is to the human condition.	5	given the evidence by the accumulation of
6	MS. BROWN:	6	macrophages, and then, secondly, that in the
7	Q The NTP study that you identified as	7	female rats, the incidences of alveolar and
8	supporting your opinion, Doctor, that also does	8	bronchial or adenoma, carcinoma, and adenoma in
9	not show evidence of neoplastic changes; is that	9	the 18-milligram-per-meter group were
10	right?	10	significantly greater than those of controls.
11	MS. O'DELL:	11	Q So did you consider the FDA's findings
12	Object to the form.	12	as it relates to the evaluation of the NTP study?
13	Doctor, please feel free to refer to	13	MS. O'DELL:
14	the study if you need to.	14	Object to the form. Vague.
15	A Yeah. I'll do that now.	15	A Which which FDA?
16	(DEPOSITION EXHIBIT NUMBER 15	16	MS. BROWN:
17	WAS MARKED FOR IDENTIFICATION.)	17	Q Have you considered, in connection with
18	MS. BROWN:	18	this case, the FDA's response to the 2014
19	Q Doctor, we'll mark as Exhibit 15 to	19	citizens petition?
20	your deposition the NTP study to which you were	20	A Yes. That's familiar. And if I recall
21	referring.	21	correctly
22	A Uh-huh.	22	Or do you have is that handy?
23	Q And this study, as well, does not show	23	Q We'll mark that as Exhibit 16, Doctor.
24	evidence of neoplastic changes.	24	(DEPOSITION EXHIBIT NUMBER 16
	Page 191		Page 193
-			
1	MS. O'DELL:	1	WAS MARKED FOR IDENTIFICATION.)
2	Object to the form.	2	MS. BROWN:
3	Do you have a copy for me?	3	Q The reason I want to talk to you about
4	It's what number?	4	this is it contains a review of the NTP study we
5	MS. BROWN:	5	were just discussing.
6	Fifteen.	6	First of all, did you consider this
7	A I think the the important	7	document in connection with your opinions in this
8	distinction in this particular study is this was	8	case?
9	an aerosol-based based study. It certainly	9	A Yes, this document's familiar.
10 11	was longer than the Hamilton but was was not a		Q Okay. And do you recall that a cancer
12	study that mimics the perineal use of talc.	11 12	prevention coalition wrote the FDA requesting that a warning label be placed on talcum powder
13	MS. BROWN:	13	
13 14	Q And, so, as it relates to your opinion in this case, Doctor, that talc induces a chronic	13	products? A Yes.
15 16	inflammation that can lead to ovarian cancer, the NTP study does not support that, does it?	15 16	Q And do you recall, as evidenced on
16 17	MS. O'DELL:	17	page 1, the FDA reviewed the data as it related to that question?
18		18	A I I recall that the FDA reviewed the
	Object to the form.	19	
19	A I would say the study does support my	20	data and determined that it was insufficient, and
20	opinion regarding tale and its role in	20	they did not identify any new compelling literature at the time. But this was in 2014.
20			merature at the time. Dut this was in 2014.
21	inflammation. And if we refer to page 6 within		
21 22	the first the first paragraph, beginning with	22	Q And the NTP
21			

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	Page 194		Page 196
1	Were you finished? If you're finished,	1	the FDA claimed serious flaws.
2	that's fine. I just didn't know if you completed	2	MS. BROWN:
3	your	3	Q At the bottom of page 3
4	A I'm just reading. There was one	4	A I see.
5	other I recall	5	Q the sentence that begins, "However,
6	MS. BROWN:	6	this study lacks convincing scientific support
7	Q Doctor, the NTP study that you pointed	7	because of serious flaws in its design and
8	us to was from 1993. Is that right?	8	conduct and conduct."
9	A I believe that's correct.	9	Do you see that?
10	Q All right. And one of the things that	10	A I do.
11	the FDA did in this letter of 2014 is reviewed	11	Q And one of the things the FDA points to
12	that study; correct?	12	is that the investigators used micronized talc
13	A Yes.	13	instead of consumer grade talc, resulting in the
14	Q And I'll direct you to page 3 of 7.	14	experimental protocol not being reflective of
15	And what the FDA concluded was that the study	15	human exposure conditions in terms of particle
16	lacked convincing scientific support because of	16	size.
17	serious flaws in its design and conduct.	17	Do you see that?
18	Do you see that?	18	A I do.
19	MS. O'DELL:	19	Q Have you made a determination in this
20	Where are you reading? Sorry.	20	case, sir, about the size of the particles in
21	MS. BROWN:	21	talcum powder products?
22	Page 3. Page 3.	22	A I I've not made that distinction.
23	MS. O'DELL:	23	And
24	Oh. Page 3. Sorry. I thought you	24	Q There's
	Page 195		Page 197
1	Page 195 said page 2. I'm sorry.	1	Page 197 A And, furthermore, I think the
1 2		1 2	_
	said page 2. I'm sorry.		A And, furthermore, I think the
2	said page 2. I'm sorry. MS. BROWN:	2	A And, furthermore, I think the importantly, the the flaws that the FDA points
2	said page 2. I'm sorry. MS. BROWN: Q Do you see that, Doctor?	2 3	A And, furthermore, I think the importantly, the the flaws that the FDA points out are, you know, not in disagreement with
2 3 4	said page 2. I'm sorry. MS. BROWN: Q Do you see that, Doctor? A Starting with	2 3 4	A And, furthermore, I think the importantly, the the flaws that the FDA points out are, you know, not in disagreement with our with our discussions surrounding both the
2 3 4 5	said page 2. I'm sorry. MS. BROWN: Q Do you see that, Doctor? A Starting with Q Bottom of page 3	2 3 4 5	A And, furthermore, I think the importantly, the the flaws that the FDA points out are, you know, not in disagreement with our with our discussions surrounding both the inflammatory response and then some of the
2 3 4 5 6	said page 2. I'm sorry. MS. BROWN: Q Do you see that, Doctor? A Starting with Q Bottom of page 3 A under toxicology findings?	2 3 4 5 6	A And, furthermore, I think the importantly, the the flaws that the FDA points out are, you know, not in disagreement with our with our discussions surrounding both the inflammatory response and then some of the results there. I don't I don't see as a
2 3 4 5 6 7	said page 2. I'm sorry. MS. BROWN: Q Do you see that, Doctor? A Starting with Q Bottom of page 3 A under toxicology findings? Q So, to orient us here, Doctor, you	2 3 4 5 6 7	A And, furthermore, I think the importantly, the the flaws that the FDA points out are, you know, not in disagreement with our with our discussions surrounding both the inflammatory response and then some of the results there. I don't I don't see as a concern
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Shawn Levy, Ph.D.

	Page 198	Page 200
1 consumer products or talc that have	may have 1	when when used in the perineum compared to
2 contaminants, whether it be asbestos of	or other. 2	inhalation.
3 MS. BROWN:	3	But I have not seen a study that tried
4 Q Do you remember the question	ı I asked, 4	to distinguish that in terms of having an exposed
5 Doctor?	5	group who inhaled tale only and then looked for
6 A Perhaps it would be helpful to	restate. 6	evidence of the presence in the ovary.
7 Q I think, probably.	7	Q Back to the FDA document we were
8 I asked if you had made a determ		discussing, Doctor, the FDA's critique of the NTP
9 in this case about the size of the partic	eles in 9	study continues on page 4, where the FDA
10 talcum powder products.	10	identifies that the investigators conceded they
11 A I so as far a determination		have problems with the aerosol generation system
I would I would say I have had an o		and that the study did not include positive and
to, you know, review or become more		negative dust controls.
the diversity of talc products and the	14	Did you consider those critiques in
interesting geographic relationship to		evaluating the NTP study in this case?
size particles and in the presence or		MS. O'DELL:
of asbestiform particles in talc, which		Object to the form.
you know, fascinating area to become		A Well, I I certainly considered
As far as examining that in each		you know, considered them in as as I would
individual studies, I certainly was able		consider any any other evidence or opinion
21 attention to earlier or later studies as it		on on these relevant subjects.
applied to when there was a specific d	_	MS. BROWN:
of the talc, such as in the NTP study v		Q The FDA went on to conclude, Doctor,
there that was one of the few that ha	ad a 24	that, in light of the shortcoming, a panel of
;	Page 199	Page 201
1 specific determination.	1	
- specific acternimation:	+	experts at the 1994 ISRTP/FDA workshop declared
2 But I was basing my opinions		experts at the 1994 ISRTP/FDA workshop declared that the 1993 NTP study has no relevance to human
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2 But I was basing my opinions of	on the 2	that the 1993 NTP study has no relevance to human
But I was basing my opinions of general behavior, summarized behavior	on the 2 ior of talc 3 4	that the 1993 NTP study has no relevance to human risk.
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Shawn Levy, Ph.D.

	Page 206		Page 208
1	the response to talc the response to talc	1	studies on which you're relying?
2	exposure as an inflammatory response is supported	2	A Not not for the contents of the
3	by a number of studies, including the NTP study,	3	report. Not that I'm aware of. I think we've
4	which, although the FDA had some concerns with,	4	we've already discussed some of the other
5	the FDA also made statements regarding the	5	references contained in the report
6	exposure to tale and other particulates having an	6	below and or at least by mention and Gates.
7	inflammatory response and that some exposed	7	(DEPOSITION EXHIBIT NUMBER 17
8	women's may have progressed to epithelial	8	WAS MARKED FOR IDENTIFICATION.)
9	cancers.	9	MS. BROWN:
10	So, again, they're I think	10	Q I'm gonna mark as Exhibit 17 to your
11	they they're in agreement there. So even the	11	deposition the Buz'Zard study that you mentioned
12	concerns with the study withstanding, there's	12	a moment ago. Do you recall that?
13	there's there's I still I still think	13	A Yes.
14	the FDA report is in support of the mechanism	14	Q Do you rely on the Buz'Zard study in
15	that we've been discussing.	15	supporting your view that chronic inflammation
16	MS. BROWN:	16	from talcum powder use can cause ovarian cancer?
17	Q The FDA concludes that a cogent	17	MS. O'DELL:
18	biological mechanism by which tale might lead to	18	17?
19	ovarian cancer is lacking, do they not?	19	MS. BROWN:
20	MS. O'DELL:	20	Yes.
21	Objection to form. Asked and answered.	21	A Sorry. Can you restate your question?
22	A But I would al I would say the FDA	22	It wasn't
23	contr perhaps contradicts itself later in the	23	MS. BROWN:
24	same document, stating that there is both an	24	Q Do you rely on what we've marked as
	Page 207		Page 209
1		1	Page 209 Exhibit 17, the Buz'Zard study, to support your
1 2	Page 207 inflammatory response and that in some exposed women they may progress to epithelial cancer.	1 2	
	inflammatory response and that in some exposed		Exhibit 17, the Buz'Zard study, to support your
2	inflammatory response and that in some exposed women they may progress to epithelial cancer.	2	Exhibit 17, the Buz'Zard study, to support your view that talcum powder causes chronic
2	inflammatory response and that in some exposed women they may progress to epithelial cancer. MS. BROWN:	2 3	Exhibit 17, the Buz'Zard study, to support your view that talcum powder causes chronic inflammation that leads to ovarian cancer?
2 3 4	inflammatory response and that in some exposed women they may progress to epithelial cancer. MS. BROWN: Q Other than the Woodruff article,	2 3 4	Exhibit 17, the Buz'Zard study, to support your view that talcum powder causes chronic inflammation that leads to ovarian cancer? MS. O'DELL:
2 3 4 5	inflammatory response and that in some exposed women they may progress to epithelial cancer. MS. BROWN: Q Other than the Woodruff article, Doctor, are you aware of any other study in	2 3 4 5	Exhibit 17, the Buz'Zard study, to support your view that talcum powder causes chronic inflammation that leads to ovarian cancer? MS. O'DELL: Object to the form.
2 3 4 5 6	inflammatory response and that in some exposed women they may progress to epithelial cancer. MS. BROWN: Q Other than the Woodruff article, Doctor, are you aware of any other study in animals that shows inflammation leading to	2 3 4 5 6	Exhibit 17, the Buz'Zard study, to support your view that talcum powder causes chronic inflammation that leads to ovarian cancer? MS. O'DELL: Object to the form. A swe've discussed, not singularly, but
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24 Q Correct. 24 A No, I did not investigate that.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	A So the Buz'Zard study, you know, primarily, as as referenced, was to illustrate a study that showed an increase in reactive oxygen species generation, and that's the the primary purpose, or I should say primary observation on the from this. Now, certainly, the study contained more observations than that and certainly had some you know, a number of other components. Q How does the Buz'Zard study support your view that talcum powder causes chronic inflammation that causes ovarian cancer? A So the Buz'Zard study supports the view that exposure to talcum powder causes an inflammatory response. Q And that inflammatory response you saw in the Buz'Zard study does not increase with increasing doses of talcum powder. Correct? A I have to review. I believe that I believe their figures suggest You know, are you referring specifically to their reaction reactive oxygen	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	different ways to interpret some of these results. But I don't disagree with your observations regarding Figure 3. MS. BROWN: Q This study was conducted in a nutritional lab, not a cancer lab. True? A I'm I'm not aware of the type of laboratory or even the Q And the study was the purpose of the study was to assess whether there was a certain effect of pine bark supplement? Is that right? MS. O'DELL: Objection to form. A They were looking at the the effect of a proprietary as stated by the authors, a proprietary mixture of water soluble bioflavonoids extracted from French maritime pine bark. MS. BROWN: Q Uh-huh. And did you investigate whether the ovarian cells that they used here were
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54 (Pages 210 to 213)

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Shawn Levy, Ph.D.

	Page 214		Page 216
1	Q Did you	1	Q My question was, Doctor, what this
2	I'm sorry. Were you done?	2	study shows is the more talc you give, the less
3	A No. I would say it's fair it's fair	3	ROS generation there is. True?
4	to say that, you know, that the whether	4	MS. O'DELL:
5	they're genetically altered or not, the the	5	Objection to form.
6	you know, the same potential limitations as far	6	A Again, under under the conditions of
7	as extrapolation to the human system would apply	7	this particular study.
8	for any signs.	8	MS. BROWN:
9	But, again, the purpose of the Buz'Zard	9	Q Do you think the Buz'Zard study is
10	study, as as referenced in the report, was to	10	scientifically reliable?
11	indicate that there are studies that have shown	11	A I have no basis to to suggest that
12	an increase in reactive oxygen specie generation	12	it's that it's not reliable.
13	under exposure to to talc. And I think the	13	Q Do you think that
14	study is reasonably clear on that increase	14	A But I think there it does if
15	relative to control.	15	there is a as we discussed earlier, an
16	Q Except what this study showed, Doctor,	16	importance to not overgeneralize conclusions or
17	is the more talc you give, the decrease from	17	lack of conclusions as, you know, outside of the
18	baseline in the reactive oxygen species.	18	system under study.
19	Correct?	19	Q If I want you to assume that the
20	MS. O'DELL:	20	Buz'Zard study used genetically altered ovarian
21	Object to the form. Asked and	21	cells that did not have the p53 protein. Would
22	answered. Misstates the testimony.	22	that affect your analysis of Buz'Zard?
23	MS. BROWN:	23	MS. O'DELL:
24	Q Take a look at Figure 3; right, Doctor?	24	Object to the form.
	Page 215		Page 217
1	A No. I agree. But, as stated, and an	1	A Well, that's that's an impossible
2	important clarification is whether that decrease	2	question. Like you can't have
3	is significant relative to the biology is is	3	Well, you can't call a cell type a
4	unknown.	4	normal ovarian cell and absent p53 protein.
5	Q Right.	5	You're it'd be you're fundamentally
6	This study certainly does not	6	changing the biology of the cell as it relates to
7	conclusively show that the more talc you give,	7	ovarian cancer or cancer in general.
8	the more ROS is generated. Correct?	8	MS. BROWN:
9	MS. O'DELL:	9	Q Because p53 is something that you have
10	Object to the form.	10	in your genes that prevents against ovarian
11	A In these particular cell lines under	11	cancer. True?
12	these conditions, the the study certainly did	12	MS. O'DELL:
	not draw that conclusion	13	Objection.
13	not draw that conclusion.		
13 14	MS. BROWN:	14	A So p5 p53 is a well-known, often
			•
14	MS. BROWN: Q In fact, what this study shows is the more talc you give, the less of of ROS	14	A So p5 p53 is a well-known, often
14 15	MS. BROWN: Q In fact, what this study shows is the more talc you give, the less of of ROS generation you have. Doesn't it?	14 15 16 17	A So p5 p53 is a well-known, often mutated gene in a number of human cancers. MS. BROWN: Q And, so, if the ovarian cells that were
14 15 16	MS. BROWN: Q In fact, what this study shows is the more talc you give, the less of of ROS	14 15 16	A So p5 p53 is a well-known, often mutated gene in a number of human cancers. MS. BROWN:
14 15 16 17	MS. BROWN: Q In fact, what this study shows is the more talc you give, the less of of ROS generation you have. Doesn't it?	14 15 16 17	A So p5 p53 is a well-known, often mutated gene in a number of human cancers. MS. BROWN: Q And, so, if the ovarian cells that were
14 15 16 17 18	MS. BROWN: Q In fact, what this study shows is the more talc you give, the less of of ROS generation you have. Doesn't it? MS. O'DELL:	14 15 16 17 18	A So p5 p53 is a well-known, often mutated gene in a number of human cancers. MS. BROWN: Q And, so, if the ovarian cells that were studied in Buz'Zard did not have p53, it will
14 15 16 17 18	MS. BROWN: Q In fact, what this study shows is the more talc you give, the less of of ROS generation you have. Doesn't it? MS. O'DELL: Object to the form.	14 15 16 17 18 19	A So p5 p53 is a well-known, often mutated gene in a number of human cancers. MS. BROWN: Q And, so, if the ovarian cells that were studied in Buz'Zard did not have p53, it will call into question the study. Fair?
14 15 16 17 18 19	MS. BROWN: Q In fact, what this study shows is the more talc you give, the less of of ROS generation you have. Doesn't it? MS. O'DELL: Object to the form. A I think importantly in this study, the	14 15 16 17 18 19 20	A So p5 p53 is a well-known, often mutated gene in a number of human cancers. MS. BROWN: Q And, so, if the ovarian cells that were studied in Buz'Zard did not have p53, it will call into question the study. Fair? MS. O'DELL:
14 15 16 17 18 19 20	MS. BROWN: Q In fact, what this study shows is the more talc you give, the less of of ROS generation you have. Doesn't it? MS. O'DELL: Object to the form. A I think importantly in this study, the time dependency for each of the doses is more	14 15 16 17 18 19 20 21	A So p5 p53 is a well-known, often mutated gene in a number of human cancers. MS. BROWN: Q And, so, if the ovarian cells that were studied in Buz'Zard did not have p53, it will call into question the study. Fair? MS. O'DELL: Object to the form.

55 (Pages 214 to 217)

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	Page 218		Page 220
1	cell to generate reactive oxygen species under	1	available literature and, in this case, review a
2	under exposure to a substance like talcum powder	2	meta-analysis of some reasonably large-scale
3	would need to be tested directly.	3	studies to try to bring the proposed biologically
4	MS. BROWN:	4	plausible mechanism and include the the
5	Q Fair to say, in your mind, a cell	5	available epidemiological information for those,
6	missing p53 is not a normal human ovarian cell.	6	such as the Penninkilampi and Eslick paper we're
7	True?	7	discussing.
8	A That is true.	8	Q What methodology did you employ in
9	(DEPOSITION EXHIBIT NUMBER 18	9	terms of reviewing the Penninkilampi findings as
10	WAS MARKED FOR IDENTIFICATION.)	10	it relates to the question you addressed in your
11	MS. BROWN:	11	report?
12	Q Handing you what we've marked as	12	MS. O'DELL:
13	Exhibit 18 to your deposition, it's a review	13	Object to the form.
14	article titled "Perineal Talc Use and Ovarian	14	A I I used the same methodology for
15	Cancer," by Ross Penninkilampi.	15	the other studies as a review of the paper and
16	Do you see that?	16	its and its methods and conclusions.
17	A I do.	17	MS. BROWN:
18	Q This is an article that you cited in	18	Q Do you believe this review, systematic
19	your report; correct?	19	review and meta-analysis, provides evidence that
20	A Correct.	20	there's a biologically plausible mechanism by
21	Q Does this article support your view	21	which talc can cause ovarian cancer?
22	that there is a biolo in part	22	A Yes. It provided it shows an
23	Strike that.	23	association between talc use and ovarian cancer.
24	Does this article, in part, support	24	I don't I don't believe this particular study
1	your opinion in this case that there is a	1	
2	biologically plausible mechanism by which talcum	2	goes on to specifically elucidate causation, but it certainly shows the association.
3	powder can cause ovarian cancer which can	3	Q Well, the study specifically says that
4	cause	4	causation cannot be found, based on the results.
5	Strike that. Gonna do it again.	5	Right?
6	Does this article support your view, in	6	MS. O'DELL:
7	part, that talcum powder can cause chronic	7	Objection to form.
8	inflammation that can cause ovarian cancer?	8	MS. BROWN:
9	A This is an article I considered in	9	Q If you look at page 42, Doctor, the
10	the in the overall review and, in the	10	very end of that first paragraph, "A certain
11	conclusions of this article, found a an	11	causal link between talc use and ovarian cancer
12	association between perineal talc use and ovarian	12	has not been established."
13	cancer, according to the authors.	13	Do you see that?
14	So it was supportive of the proposed	14	MS. O'DELL:
15	mechanism but was, again, in part.	15	Where are you? Page 42. Where are you
16	Q And, on page 13 and 14 of your report,	16	reading, please?
17	you, in fact, reference the Penninkilampi study	17	MS. BROWN:
18	and some of its conclusions; correct?	18	Page 42, the end of the first
19	A Correct. On the on the bottom of	19	paragraph.
20	page 13, yes.	20	A Yes, I see that.
21	Q And what was the purpose of including	21	MS. BROWN:
22	this description of Penninkilampi in your expert	22	Q Do you agree with that statement,
23	report, Doctor?	23	Doctor, that a causal link between talc use and
24	A Just to be sure to be to include	24	ovarian cancer has not yet been established?
47	Just to be sure to be to merude	47	ovarian cancer has not yet deem established?

56 (Pages 218 to 221)

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	Page 222		Page 224
1	MS. O'DELL:	1	examine that comprehensively, when you consider
2	Objection.	2	the etiology of a disease and the latency periods
3	A No, I wouldn't. But, again, my review	3	that have been observed in ovarian cancer in
4	of this was to tie the biologically plausible	4	general and the meta review by both this earlier
5	mechanism to, you know, human observation, not	5	paper by Penninkilampi and then their subsequent
6	provide a evaluation of the of the causal	6	later work, you have a challenge of a in a
7	link.	7	cohort study, a disease that is somewhat rare,
8	And I think the I would suspect that	8	coupled with a exposure and latency period that's
9	the	9	been, in the in the limited number of studies
10	I'm also not aware of a study that has	10	that have looked at this, appears to be quite
11	been able to or a or a what would be	11	long, and then when you couple in the the
12	necessary	12	ethical concerns of actually performing a trial,
13	I'm not aware of a study that has been	13	where it becomes a very difficult causation bar
14	able to provide all of the recognized and	14	to reach.
15	established methodology for causation and have	15	And, so, instead, we rely on the
16	that applied in in talc.	16	case the available case-control data and then
17	MS. BROWN:	17	systematic and meta-analysis reviews such as some
18	Q You're not aware of any study in the	18	of the epidemiologists have performed to make
19	talc epidemiology that has concluded that talcum	19	assessments into the likelihood that and the
20	powder causes ovarian cancer; correct?	20	strength of the association between talc use and
21	MS. O'DELL:	21	ovarian cancer.
22	Objection to form.	22	Q Are you intending to provide an opinion
23	A I'm aware of a number of studies that	23	on the strength of the association between talc
24	have shown a strong correlation between the two.	24	use and ovarian cancer as evidenced in the
	Da		Dama 225
	Page 223		Page 225
1	But I would have to defer to the epidemiology	1	epidemiology?
2	expert witnesses as to their opinion on	2	epidemiology? MS. O'DELL:
2	expert witnesses as to their opinion on causation.	2	epidemiology? MS. O'DELL: Object to the form.
2 3 4	expert witnesses as to their opinion on causation. MS. BROWN:	2 3 4	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to
2 3 4 5	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you	2 3 4 5	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then
2 3 4 5 6	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you reviewed in connection with your opinion was the	2 3 4 5 6	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then examining whether that biologically plausible
2 3 4 5 6 7	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you reviewed in connection with your opinion was the talc epidemiology. Is that right?	2 3 4 5 6 7	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then examining whether that biologically plausible mechanism presented is supported by observations
2 3 4 5 6 7 8	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you reviewed in connection with your opinion was the talc epidemiology. Is that right? A That's right.	2 3 4 5 6 7 8	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then examining whether that biologically plausible mechanism presented is supported by observations in in available human studies.
2 3 4 5 6 7 8	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you reviewed in connection with your opinion was the talc epidemiology. Is that right? A That's right. Q Did you conduct a review of all of the	2 3 4 5 6 7 8	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then examining whether that biologically plausible mechanism presented is supported by observations in in available human studies. MS. BROWN:
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2 3 4 5 6 7 8 9 10 11 12	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you reviewed in connection with your opinion was the talc epidemiology. Is that right? A That's right. Q Did you conduct a review of all of the available epidemiology on talcum powder use and ovarian cancer? A I certainly tried to review it as	2 3 4 5 6 7 8 9 10 11 12	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then examining whether that biologically plausible mechanism presented is supported by observations in in available human studies. MS. BROWN: Q And when you say your opinion is limited to a biological plausible mechanism, are you talking of the theoretical concept or are you
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you reviewed in connection with your opinion was the talc epidemiology. Is that right? A That's right. Q Did you conduct a review of all of the available epidemiology on talcum powder use and ovarian cancer? A I certainly tried to review it as comprehensively as as possible. Q And, in connection with that review, you'll agree there is not a single study that concludes there is a causal association between talcum powder use and ovarian cancer; correct? MS. O'DELL: Objection to form. A So I would I would interestingly, there it's it becomes a as more as	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then examining whether that biologically plausible mechanism presented is supported by observations in in available human studies. MS. BROWN: Q And when you say your opinion is limited to a biological plausible mechanism, are you talking of the theoretical concept or are you talking about in the context of women using talcum powder perineally? A In the context MS. O'DELL: Object to the form. THE WITNESS: Sorry. MS. O'DELL: Excuse me.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you reviewed in connection with your opinion was the talc epidemiology. Is that right? A That's right. Q Did you conduct a review of all of the available epidemiology on talcum powder use and ovarian cancer? A I certainly tried to review it as comprehensively as as possible. Q And, in connection with that review, you'll agree there is not a single study that concludes there is a causal association between talcum powder use and ovarian cancer; correct? MS. O'DELL: Objection to form. A So I would I would interestingly, there it's it becomes a as more as more and more information has become available over the last few years, that becomes a more and	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then examining whether that biologically plausible mechanism presented is supported by observations in in available human studies. MS. BROWN: Q And when you say your opinion is limited to a biological plausible mechanism, are you talking of the theoretical concept or are you talking about in the context of women using talcum powder perineally? A In the context MS. O'DELL: Object to the form. THE WITNESS: Sorry. MS. O'DELL: Excuse me. A In the in the context of women using talcum powder perineally specifically, and
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	expert witnesses as to their opinion on causation. MS. BROWN: Q One of the things you told us that you reviewed in connection with your opinion was the talc epidemiology. Is that right? A That's right. Q Did you conduct a review of all of the available epidemiology on talcum powder use and ovarian cancer? A I certainly tried to review it as comprehensively as as possible. Q And, in connection with that review, you'll agree there is not a single study that concludes there is a causal association between talcum powder use and ovarian cancer; correct? MS. O'DELL: Objection to form. A So I would I would interestingly, there it's it becomes a as more as more and more information has become available	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	epidemiology? MS. O'DELL: Object to the form. A No. My my opinions are limited to the biologically plausible mechanism and then examining whether that biologically plausible mechanism presented is supported by observations in in available human studies. MS. BROWN: Q And when you say your opinion is limited to a biological plausible mechanism, are you talking of the theoretical concept or are you talking about in the context of women using talcum powder perineally? A In the context MS. O'DELL: Object to the form. THE WITNESS: Sorry. MS. O'DELL: Excuse me. A In the in the context of women using

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	Page 226		Page 228
1	the fundamental aspects of that mechanism may	1	trial that would examine that in a well-powered
2	apply to other exposures as well.	2	fashion to answer that question directly. And,
3	MS. BROWN:	3	certainly, as of today, there would be some
4	Q Like what?	4	significant ethical concerns with that design.
5	A Well, the the other exposure we've	5	So, instead, we rely on the cohort and
6	been discussing, in in that some of the	6	case-control studies that are available. And
7	studies looked at inhalation exposure, et cetera.	7	those, again, studies are supporting an
8	But the primary review and the primary	8	association between talc use and ovarian cancer.
9	opinion is based on the perineal use of talcum	9	MS. BROWN:
10	powder and that exposure that, as as we	10	Q Right. But I'm talking about for your
11	discussed earlier, has a certainly a strong	11	opinion that it's biologically plausible for
12	association with perineal use and an exposure	12	perineal use of talc to cause ovarian cancer,
13	exposure in the ovaries.	13	have you made a determination, in your mind, of
14	Q Your opinion is that if a woman uses	14	how long that perineal use has to take place for?
15	talcum powder perineally, there is a biologically	15	MS. O'DELL:
16	plausible mechanism by which enough talcum powder	16	Object to the form.
17	can migrate from outside of her vagina to her	17	A I wasn't asked to provide to provide
18	ovary to cause chronic inflammation that can lead	18	that opinion on and it on that length or
19	to ovarian cancer?	19	exposure or duration.
20	MS. O'DELL:	20	Again, it was the focus was on the
21	Object to the form.	21	biologically plausible mechanism that if you have
22	A So I'd say that the first part of your	22	a single exposure and that that that single
23	question is well established and included in the	23	exposure through to any other may be sufficient
24	statements from FDA and others that that	24	to trigger that mechanism.
	Page 227		Page 229
1	migration does occur.	1	MS. BROWN:
2	And then the next step in the in the	2	Q That's helpful, Doctor.
3	mechanism is that that causes inflammation which,	3	So, as I understand your opinion, your
4	again, as we've discussed, in a number of	4	piece of the puzzle here was to look at whether
5	studies, that the inflammation occurs and then,	5	one single application of talcum powder to the
6	in these human studies, in their systematic	6	perineum could lead to chronic inflammation that
7	review, that there is a clear association or a	7	could cause ovarian cancer.
8	a observed association between perineal use of	8	MS. O'DELL:
0	talc and the detection of ovarian cancer at some	9	Objection.
9			
9 10	point in the in the women's lives and, in the	10	MS. BROWN:
	point in the in the women's lives and, in the case of the Penninkilampi, with a relationship to	10 11	MS. BROWN:
10			MS. BROWN: Q Correct?
10 11	case of the Penninkilampi, with a relationship to	11	MS. BROWN: Q Correct?
10 11 12	case of the Penninkilampi, with a relationship to the number of lifetime applications.	11 12	MS. BROWN: Q Correct? A No, no.
10 11 12 13	case of the Penninkilampi, with a relationship to the number of lifetime applications. So considering those things together,	11 12 13	MS. BROWN: Q Correct? A No, no. MS. O'DELL:
10 11 12 13 14	case of the Penninkilampi, with a relationship to the number of lifetime applications. So considering those things together, yes, there is a biologically plausible mechanism	11 12 13 14	MS. BROWN: Q Correct? A No, no. MS. O'DELL: Object to the form of the question.
10 11 12 13 14 15	case of the Penninkilampi, with a relationship to the number of lifetime applications. So considering those things together, yes, there is a biologically plausible mechanism for perineal talc use through to ovarian cancer.	11 12 13 14 15	MS. BROWN: Q Correct? A No, no. MS. O'DELL: Object to the form of the question. A No. That's not my my statement.
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1 2			Page 232
2	believe I think we	1	effect, it doesn't matter at all how much of the
_	Q That's what I want to understand. And	2	product is used?
3	how you how you make this biological	3	MS. O'DELL:
4	plausibility determination is to evaluate a	4	Objection.
5	single exposure? Is that right?	5	MS. BROWN:
6	MS. O'DELL:	6	Q Do you see what I'm struggling with?
7	Object to the form.	7	Can you help me understand? If I'm trying to
8	A No.	8	figure out does X cause Y, it sounds like what
9	MS. O'DELL:	9	you're saying is it doesn't matter how much X you
10	Misstates his testimony.	10	have.
11	A That's that's not what I'm stating.	11	MS. O'DELL:
12	My my statement is that the the	12	Objection to form.
13	biologically plausible mechanism is a mechanism	13	A So we're we're talking about
14	that is independent of the exposure and that, as	14	mech so mechanistic action
15	part of the description of that mechanism and the	15	MS. BROWN:
16	evaluation of the studies supporting that	16	Q Okay.
17	mechanism through an inflammatory response, the	17	A which means the you set aside the
18	question of exposure, number, and duration,	18	"how much." And the question is, from on a
19	length of time, et cetera, would be a separate	19	molecular level, can the presence of a particular
20	evaluation.	20	compound in a particular location cause a
21	MS. BROWN:	21	biological effect. And, so, that is the primary
22	Q Is your opinion that talcum powder	22	focus of the opinion in the in the paper or
23	products cause chronic inflammation that cause	23	sorry in my report.
24	ovarian cancer limited to perineal use, or have	24	And then extending that to how much,
	Page 231		Page 233
1	you also evaluated body use of talcum powder	1	how long, and the dur and then the intensity
2	products?	2	or duration of the biological effect, again, is a
3	MS. O'DELL:	3	separate would be a separate discussion or
4	Object to the form.	4	separate study.
5	A My my focus was on the perineal use,	5	So, again, to clarify, the focus had
6	and that's where the majority of the studies	6	been on that some of the fundamental
7	have have examined. So the focus was on	7	mechanisms, talc a talcum powder exposure to
	perineal use of talcum powder.	8	an inflammatory response to the inflammatory
8	MS. BROWN:	9	response causing cancer.
9	Q And in conducting that evaluation, the	10	Again, the I would refer to and
	results of which are contained in your report,	11	defer to the other experts in epidemiology
9 10 11			1 1 0
9 10 11 12	you did not endeavor to quantify how much talcum	12	regarding their opinions on the validity of
9 10 11 12 13	powder used perineally could possibly migrate to	13	regarding their opinions on the validity of the asso validity and strength of the
9 10 11 12 13 14	powder used perineally could possibly migrate to the ovaries; is that right?	13	regarding their opinions on the validity of the asso validity and strength of the associations, again, from a formal epidemiology
9 10 11 12 13 14	powder used perineally could possibly migrate to the ovaries; is that right? MS. O'DELL:	13 14 15	regarding their opinions on the validity of the asso validity and strength of the associations, again, from a formal epidemiology perspective.
9 10 11 12 13 14 15	powder used perineally could possibly migrate to the ovaries; is that right? MS. O'DELL: Object to the form. Asked and answered	13 14 15 16	regarding their opinions on the validity of the asso validity and strength of the associations, again, from a formal epidemiology perspective. My review of those studies has ind
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9 10 11 12 13 14 15 16 17 18 19 20 21	powder used perineally could possibly migrate to the ovaries; is that right? MS. O'DELL: Object to the form. Asked and answered maybe ten times already today. But you may answer the question. A Yeah. I I wasn't asked to to provide that opinion or attempt that quantitation.	13 14 15 16 17 18 19 20 21	regarding their opinions on the validity of the asso validity and strength of the associations, again, from a formal epidemiology perspective. My review of those studies has ind has relied on their conclusions, and, then, in my own review of their of their methodology showing a increasing association, that is the bookends of my of the mechanism I proposed. So what this study is looking at is

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1	studies are asking how many times, what, and	1	that opinion from the observations of a couple of
2	where, but there's been no evaluation that I'm	2	different studies, including the recent Saed
3	aware of that looks at exactly how the talc was	3	paper that did look at the specific consumer
4	applied, when and where. Instead, it was asked	4	product every you know, showing a if we do
5	number of lifetime applications, duration of use,	5	it by way of comparison, between the Buz'Zard
6	and examining latency period.	6	paper and the recent Saed, seemingly a larger
7	And when I examine that information	7	magnitude of reactive oxygen species generation.
8	from the perspective of that biological	8	But, again, that is a extrapolating against
9	mechanism, I, you know, notice some parallels in	9	two different studies.
10	between latency period averaging roughly twenty	10	Q Do you
11	years, which which mimics somewhat what's	11	MS. O'DELL:
12	observed in the asbestos field as far as, you	12	Excuse me. We've been going about an
13	know, lung effect latency.	13	hour and 20 minutes, maybe a little more.
14	And then that continues into the	14	MS. BROWN:
15	constituent or the other constituent	15	I think a little less. But I'm gonna
16	components of some of the products, including	16	finish up. Then we'll take a quick break.
17	testing into asbestos and some of the and	17	Q Does that work for you, Doctor?
18	heavy metal exposure, et cetera, that those are,	18	I just want to finish Penninkilampi if
19	again, supportive and offer a potential	19	we can.
20	amplifying effect in that in that mechanism,	20	MS. O'DELL:
21	given the nature of those other components.	21	How much more do you have to go?
22	Q What's the scientific support for the	22	MS. BROWN:
23	amplification effect you just described?	23	About five or ten minutes.
24	A Just that the presence of	24	MS. O'DELL:
	Page 235		Page 237
1	Page 235	1	
1 2		1 2	If you need a break, we can break now.
	more the		If you need a break, we can break now. Or we can keep if you would like to wait five
2	more the So if we extend beyond the opinion that	2	If you need a break, we can break now.
2	more the So if we extend beyond the opinion that talc, as a com as a singular compound, causes	2 3	If you need a break, we can break now. Or we can keep if you would like to wait five or ten minutes, that's fine. Whatever's best for
2 3 4	more the So if we extend beyond the opinion that talc, as a com as a singular compound, causes inflammation and then also, based on the reviewed	2 3 4	If you need a break, we can break now. Or we can keep if you would like to wait five or ten minutes, that's fine. Whatever's best for you, Doctor.
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2 3 4 5 6 7 8	more the So if we extend beyond the opinion that talc, as a com as a singular compound, causes inflammation and then also, based on the reviewed expert reports, find that testing of talc has been shown to contain asbestos or asbestos fibers, that the presence of now two potential insulting	2 3 4 5 6	If you need a break, we can break now. Or we can keep if you would like to wait five or ten minutes, that's fine. Whatever's best for you, Doctor. THE WITNESS: Yeah, if we could break now, that would
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Shawn Levy, Ph.D.

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1	discussion that begins on page 45. In the second	1	presence of the talc or a continued chronic
2	sentence, the authors conclude here that the	2	immune response or chronic inflammatory response,
3	mechanism by which perineal talc use may increase	3	again, either directly or indirectly related to
4	the risk of ovarian cancer is uncertain.	4	the exposure, would help support a environment
5	Do you see that?	5	that would allow the cancer progression to occur.
6	A I see that sentence, yes.	6	So that is simply delineating those
7	Q And they go on to discuss the theory	7	those two things as it relates to inflammation
8	that talc could produce a chronic inflammatory	8	and talc exposure.
9	response which could predispose to the	9	Q So you described two potential
10	development of ovarian cancer.	10	responses to talc right now. Correct?
11	Do you see that?	11	MS. O'DELL:
12	A Yes.	12	Objection to form.
13	Q Okay. And they go on to explain a	13	A At least two, yes.
14	little bit more about the theory. Do you see	14	MS. BROWN:
15	that?	15	Q Okay. And one is an acute inflammatory
16	MS. O'DELL:	16	response; correct?
17	Object to the form.	17	A Yes.
18	A Specifically the sentence beginning	18	Q And for that you point to the Saed data
19	with "it is argued"?	19	on reactive oxygen species; is that right?
20	MS. BROWN:	20	MS. O'DELL:
21	Q Uh-huh. "It is argued that cellular	21	Objection to form.
22	injury, oxidative stress, and local increase in	22	A That is one example, yes.
23	inflammatory mediators such as cytokines,	23	MS. BROWN:
24	prostaglandins may be mutagenic and, hence,	24	Q Okay. Are there is there other
21	prostagiandins may be indiagenic and, nence,		Q Okay. The there is there other
	D 020		
	Page 239		Page 241
1	promote carcinogenesis."	1	Page 241 scientific support for your opinion that talc can
1 2		1 2	
	promote carcinogenesis."		scientific support for your opinion that tale can
2	promote carcinogenesis." Do you see that?	2	scientific support for your opinion that talc can cause acute inflammation?
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2 3 4	promote carcinogenesis." Do you see that? A I see that. Q This sentence refers to chronic	2 3 4	scientific support for your opinion that tale can cause acute inflammation? A So it's any of the similar studies to Saed. And I would have to double-check the
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	Page 242		Page 244
1	acute inflammatory response resolve?	1	they're not I don't have evidence to to
2	A I don't I don't have any evidence to	2	delineate those specifically, other than other
3	suggest it resolves or not. The	3	than the supported mechanism that an acute
4	Again, getting back to the mechanism	4	response can cause cellular damage, and then a
5	that has been that I've described and is	5	chronic response can cause cellular damage and be
6	supported by the literature we've been discussing	6	supportive of that continued that continued
7	is that there is a acute response as well as	7	transformation.
8	evidence for talc causing a more chronic	8	So they are they those those
9	inflammatory response. And so I've proposed a	9	two delineated immune responses can either work
10	mechanism by which both of those can contribute	10	in in concert with each other, but there is no
11	to or enhance the development of cancer.	11	evidence to suggest that one is insufficient
12	Q Can both of those inflammatory	12	relative to the other in terms of progression of
13	responses that you just described initiate	13	the disease.
14	cancer?	14	And I think specific to the to the
15	MS. O'DELL:	15	supported mechanism is that there I'm not
16	Object to the form. Asked and	16	making that distinction in the in the report.
17	answered.	17	MS. BROWN:
18	A They are certainly a component of that.	18	Q Right. In your report, you don't talk
19	And so, again, to restate the	19	about acute versus chronic inflammation.
20	mechanism, the acute inflammatory response or	20	Correct?
21	the the formation of reactive oxygen species	21	A That's correct. I don't delineate the
22	has been known for decades to cause cellular	22	two. Right.
23	damage, and then cellular damage can result in	23	Q But, here today, as we discuss in more
24	mutation of of DNA.	24	detail your opinions, you're explaining that
	Page 243		Page 245
1	And then when you also consider the	1	you're in your mind, you see two potential
2	And then when you also consider the full constituents of the products, the potential	2	you're in your mind, you see two potential inflammatory responses from talc. Right?
2	And then when you also consider the full constituents of the products, the potential presence	2	you're in your mind, you see two potential inflammatory responses from talc. Right? MS. O'DELL:
2 3 4	And then when you also consider the full constituents of the products, the potential presence And this gets back to our earlier	2 3 4	you're in your mind, you see two potential inflammatory responses from talc. Right? MS. O'DELL: Object to the form.
2 3 4 5	And then when you also consider the full constituents of the products, the potential presence And this gets back to our earlier discussions about amplification.	2 3 4 5	you're in your mind, you see two potential inflammatory responses from talc. Right? MS. O'DELL: Object to the form. A I would disagree. I would say that
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2 3 4 5	And then when you also consider the full constituents of the products, the potential presence And this gets back to our earlier discussions about amplification. Components such as chromium, which have a direct DNA-damaging effect, can also	2 3 4 5	you're in your mind, you see two potential inflammatory responses from talc. Right? MS. O'DELL: Object to the form. A I would disagree. I would say that I I based on the information and studies, the the review of other expert reports, that
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Shawn Levy, Ph.D.

	Page 246		Page 248
1	response, being an inflammatory response in	1	important.
2	totality, may have the ability to have	2	Q So there is a length of time or an
3	those to to have two independent responses	3	amount of exposure that would cause a chronic
4	in tissues.	4	inflammation that is different from the length of
5	Q And, in your opinion, can both the	5	time and the magnitude of exposure that will
6	acute inflammatory response and the chronic	6	cause an acute inflammation?
7	inflammatory response separately cause ovarian	7	MS. O'DELL:
8	cancer?	8	Object to the form. Misstates his
9	A Under the the mechanism I've	9	testimony.
10	proposed, yes, that would be a a possibility	10	A Yeah, no. Not that's not what
11	that they could separately cause, given that	11	I that's not what I've stated.
12	they they're both inflammatory responses, they	12	I've simply stated that if we if we
13	both cause cellular damage.	13	look at the what is known about inflammation
14	And in the case in this case,	14	and the biological response to foreign bodies,
15	delineating the acute from chronic was more to	15	you can have an initial acute response mediated
16	clarify the cellular damage aspect, the	16	by the immune system and mediated by some of the
17	transformative aspect of cancer from the the	17	cellular damage that takes place, and then that
18	necessary tumor progression aspects of cancer to	18	same response may continue in a chronic form for
19	actually progress to disease.	19	some period of time and at some level of
20	Q In your opinion, Doctor, does talc	20	magnitude.
21	always first cause an acute reaction and then a	21	Now, certainly there is likely a
22	chronic reaction?	22	dependency or, I should say, likely a
23	MS. O'DELL:	23	relationship to the amount of exposure and the
24	Object to the form.	24	magnitude of that response.
	Dana 247	1	
	Page 247		Page 249
1	A I I I don't have evidence	1	But, again, the the opinions here
2	A I I I don't have evidence to to state that and would defer to some of	2	But, again, the the opinions here are specific to the mechanism and the initial
2	A I I I don't have evidence to to state that and would defer to some of the other expert witnesses, like Dr. Saed, for	2 3	But, again, the the opinions here are specific to the mechanism and the initial elucidation of that response and, you know,
2 3 4	A I I I don't have evidence to to state that and would defer to some of the other expert witnesses, like Dr. Saed, for opinions on acute response versus chronic.	2 3 4	But, again, the the opinions here are specific to the mechanism and the initial elucidation of that response and, you know, not not on a quantitation of a a
2 3 4 5	A I I I don't have evidence to to state that and would defer to some of the other expert witnesses, like Dr. Saed, for opinions on acute response versus chronic. MS. BROWN:	2 3 4 5	But, again, the the opinions here are specific to the mechanism and the initial elucidation of that response and, you know, not not on a quantitation of a a dose-response relation or a dose-response
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	A I I I don't have evidence to to state that and would defer to some of the other expert witnesses, like Dr. Saed, for opinions on acute response versus chronic. MS. BROWN: Q In your opinion, though, you have at least delineated in your mind two different types of inflammatory responses. Correct? MS. O'DELL: Objection to form. A I've I have described two mechanisms for inflammation that that both can are both supportive of the overall mechanism that we're discussing. MS. BROWN: Q And is it is there a length of time that differentiates an acute inflammatory response from a chronic inflammatory response? A Certainly I would say there in my opinion, there would it would be a potential time dependency or a magnitude dependency to delineate an acute versus chronic response. But,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	But, again, the the opinions here are specific to the mechanism and the initial elucidation of that response and, you know, not not on a quantitation of a a dose-response relation or a dose-response curve or relationship. MS. BROWN: Q Do you believe that every time a talc particle enters the human body, it produces a inflammatory response? A All of the evidence would suggest yes. Q Have you considered Heller's 1996 study on that score? A I would have to On the score of inflammatory response? Q Do you recall that Heller looked at benign ovarian tissue and identified the potential presence of talc? A Sounds familiar. Q I'll hand it to you. (DEPOSITION EXHIBIT NUMBER 19 WAS MARKED FOR IDENTIFICATION.)
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63 (Pages 246 to 249)

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Shawn Levy, Ph.D.

	Page 250		Page 252
1	Heller's '96 article as Exhibit 19.	1	mechanism that talc causes inflammation and then
2	And what I want to ask you about is	2	inflammation has a role in ovarian cancer.
3	Heller's finding as it relates to no reaction to	3	Extending that to circumstances where
4	the talc particle. Did you consider that	4	an exposure would not cause inflammation is is
5	MS. O'DELL:	5	not germane to that to that mechanism and, in
6	Object to the form.	6	fact, again, not supported by literature to show
7	MS. BROWN:	7	that, you know, that a single exposure or some
8	Q in forming your opinion here?	8	number of exposures are necessary or sufficient
9	MS. O'DELL:	9	for a particular phenotype.
10	Excuse me. Object to the form.	10	MS. BROWN:
11	MS. BROWN:	11	Q So this Heller study purports to have
12	Q I'll direct you, Doctor.	12	found tale in ovarian tissue without an
13	On page 1508 of the Heller article,	13	inflammatory response; right?
14	right above the comments section, "The	14	MS. O'DELL:
15	investigators on this study concluded no evidence	15	Object to the form.
16	or response to talc, such as foreign body giant	16	A In looking at their
17	cell reactions or fibrosis in the tissue."	17	Just one moment.
18	My question is whether, in your	18	So this was a
19	opinion, every time talc is enters the body,	19	So is your is your question that
20	it necessarily produces an inflammatory response.	20	the if the author showed talc being
21	MS. O'DELL:	21	present in normal ovarian tissue?
22	Object to the form.	22	Q Well, first my question is did you
23	A No. My opinion is that every time tale	23	consider this article in connection with your
24	enters the body, that has the potential to cause	24	opinions in the case?
24	enters the body, that has the potential to cause	21	opinions in the case:
	Page 251		Page 253
1	Page 251 an immune response.	1	Page 253 A I don't recall this article
1 2		1 2	
	an immune response.		A I don't recall this article
2	an immune response. MS. BROWN:	2	A I don't recall this article specifically, and I don't believe I cited it.
2	an immune response. MS. BROWN: Q Have you made a determination about	2 3	A I don't recall this article specifically, and I don't believe I cited it. I guess there's no.
2 3 4	an immune response. MS. BROWN: Q Have you made a determination about whether or not that always happens?	2 3 4	A I don't recall this article specifically, and I don't believe I cited it. I guess there's no. Q And then my second question, Doctor, is
2 3 4 5	an immune response. MS. BROWN: Q Have you made a determination about whether or not that always happens? A I'll have	2 3 4 5	A I don't recall this article specifically, and I don't believe I cited it. I guess there's no. Q And then my second question, Doctor, is is it your opinion that every time the human body is exposed to particles of talc, it necessarily produces an inflammatory response that can either
2 3 4 5 6	an immune response. MS. BROWN: Q Have you made a determination about whether or not that always happens? A I'll have MS. O'DELL:	2 3 4 5 6	A I don't recall this article specifically, and I don't believe I cited it. I guess there's no. Q And then my second question, Doctor, is is it your opinion that every time the human body is exposed to particles of talc, it necessarily
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64 (Pages 250 to 253)

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Shawn Levy, Ph.D.

ı	Page 254		Page 256
1	MS. BROWN:	1	A In in terms of cancer, the
2	Q Do you think you need significant talc	2	epidemiology would suggest or I would say
3	accumulation in the human body to cause or	3	the the evidence in the literature is does
4	promote ovarian cancer?	4	not allow that question to be answered, and the
5	MS. O'DELL:	5	reason being is when you look at the latency of
6	Objection to form.	6	the disease and the progression of the disease
7	A I wasn't asked to to provide	7	and the challenges in detecting it, there just
8	provide that opinion.	8	has not been enough time with the, perhaps, rigor
9	And, again, referring to the studies	9	of analysis that is undergoing now to make that
10	that have that were reviewed and included in	10	assessment of is it 100 percent of the time or is
11	the report, there is a relationship between	11	it something less than 100 percent of the time.
12	lifetime exposure and an increased risk in the	12	I think, statistically speaking,
13	epidemiology reports.	13	there the only data that that is available
14	But more detail on that in this	14	for review is is what is contained in some of
15	discussion, I would defer to the epidemiology	15	the meta-analysis and epidemiology studies
16	experts. But the there there does appear	16	showing a significant increased risk to ovarian
17	to be a more of a response based on more talc	17	cancer based on exposure to talc. And it
18	in the in the studies referenced.	18	would it would only be I think it would be
19	MS. BROWN:	19	inappropriate at this time to try to infer what
20	Q So on	20	percentage of time that would be indicative of
21	Do you have any reason to dispute the	21	for exposure.
22	findings of Heller here of talc in the ovaries	22	Q Have the plaintiffs' lawyers shared
23	without a foreign body reaction?	23	with you expert reports from their expert
24	MS. O'DELL:	24	pathologists who have looked at ovarian tissue of
	Page 255		Page 257
1	Objection.	1	plaintiffs in this litigation, purported to find
2	A I guess my I have some I guess I	2	talc with no foreign body reaction?
3	have some concerns with some of the methodology	3	MS. O'DELL:
4	as it relates to the detection of the	4	Objection. There have been no
5	MS. BROWN:	5	case-specific pathology reports disclosed in the
6	Q Do you think it's possible, Doctor, for	6	litigation we're here about today. And if
7	talc to enter the body and and be completely	7	there's something else you're talking about, you
8	inert and not cause any reaction?	8	should be specific.
9	MS. O'DELL:	9	A The I don't recall a pathology
10	Object to the form.	10	report. I've seen expert reports from
11	A So my the the mechanism I've	11	epidemiologists, OB-GYN and and some and
12	proposed is is based you know, based on the	12	other scientists. But I don't recall a specific
13	literature, is that talc causes an inflammatory	13	pathology report.
14	response and that inflammatory response is	14	MS. BROWN:
15	supportive of progression to ovarian cancer.	15	Q If the biologically plausible mechanism
16	MS. BROWN:	16	that you posit in your report is true, would you
17	Q Does that happen 100 percent of the	17	expect that the pathology slides of women with
1	time?	18	ovarian cancer who have used talc would evidence
18	MS. O'DELL:	19	talcum powder with a foreign body reaction?
18 19		1	MS. O'DELL:
	Object to the form. In terms of	20	MS. O DELL.
19	Object to the form. In terms of inflammatory response or in terms of cancer?	20 21	Object to the form. Incomplete
19 20	-		
19 20 21	inflammatory response or in terms of cancer?	21	Object to the form. Incomplete

65 (Pages 254 to 257)

	Page 258		Page 260
1	MS. BROWN:	1	mentioned some of the other subtypes and the
2	Q Well, would you expect to see some	2	common gene mutations that go along with them and
3	evidence of inflammation in the ovarian tissue of	3	as, again, supportive of the same mechanism. And
4	women who used talcum powder products?	4	I think, if anything, the the current data
5	MS. O'DELL:	5	would suggest a a higher prevalence of a
6	Object to the form. Incomplete	6	particular subtype of cancer but certainly not
7	hypothetical.	7	the the mechanism doesn't is not exclusive
8	A Overall, speaking to, as we were	8	to any one type.
9	discussing earlier, the potential for that	9	Q In your view, all types of epithelial
10	inflammatory response remains. But given the	10	ovarian cancer can be caused by inflammation?
11	heterogeneity in individuals, their overall	11	A No. That's that's not my statement.
12	health, their natural variation in the levels of	12	I would say all types of ovarian cancer are
13	activities of antioxidants, et cetera, I I	13	supported by an inflammatory response but that,
14	would state that I would expect a variety of	14	as from a causative perspective, that's not what
15	magnitude of response to a foreign body like talc	15	the mechanism is provided as an opinion as to
16	among the individuals exposed to it.	16	cause. It's more that the an inflammatory
17	MS. BROWN:	17	response plays a role in disease initiation
18	Q You'd expect to see something; right?	18	and/or progression.
19	MS. O'DELL:	19	Q In your view, Dr. Levy, it is
20	Object to the form.	20	biologically plausible for inflammation to cause
21	A No, not necessarily, because it it	21	all types of epithelial ovarian cancer; true?
22	very much depends on the timing that's that is	22	A Again, I'm not I've not been
23	observed, how what methodology is used to	23	speaking to inflammation as a causative as a
24	detect the presence of talc or detect the	24	cause of ovarian cancer. It is a factor in
	Page 259		Page 261
1	Page 259 presence of the inflammatory response, if it's,	1	Page 261 in in disease progression.
1 2		1 2	
	presence of the inflammatory response, if it's,		in in disease progression.
2	presence of the inflammatory response, if it's, you know, done histopathologically, if it is	2	in in disease progression. Q So when you conclude, as you do in your
2	presence of the inflammatory response, if it's, you know, done histopathologically, if it is based on a reactive oxygen species assay.	2	in in disease progression. Q So when you conclude, as you do in your report, that talcum powder products cause chronic
2 3 4	presence of the inflammatory response, if it's, you know, done histopathologically, if it is based on a reactive oxygen species assay. So given the speaking in general	2 3 4	in in disease progression. Q So when you conclude, as you do in your report, that talcum powder products cause chronic inflammation, you do not conclude that that
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Shawn Levy, Ph.D.

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1	a component of ovarian cancer.	1	Well, first, we're I want to be
2	Q Well, I'm not sure what you mean by	2	cautious with our use of the word "cause"
3	that. Can inflammation cause ovarian cancer?	3	and because that's, as we've been discussing,
4	MS. O'DELL:	4	this is a it is it is not controversial
5	Object to the form. Asked and	5	that ovarian cancer inflammation plays a role
6	answered.	6	in ovarian cancer and and, again, my opinion
7	A I'm asked I suppose again, the	7	is not towards causation.
8	opinion here is of a mechanistic opinion, not a	8	MS. BROWN:
9	causation. I would defer to some of the	9	Q Well, I mean, tumors themselves elicit
10	epidemiology experts to have opinions on	10	inflammatory responses; right?
11	causation.	11	A What so what specifically, what
12	MS. BROWN:	12	are you referring to?
13	Q You don't have an opinion on whether or	13	Q Well, you talk about tumor-activated
14	not inflammation can cause ovarian cancer?	14	macrophages in your report; right?
15	MS. O'DELL:	15	A Yes.
16	Different question.	16	Q There is an inflammatory response
17	A Correct. That's a	17	that's produced by the tumor itself; correct?
18	As we've been discussing, my opinions	18	A Yes. There are there
19	are that inflammation is a component of ovarian	19	there are absolutely cancer progression markers
20	cancer and can be attributed to aspects, not	20	that are associated with continued inflammation.
21	exclusively, but contributing to aspects of its	21	Q And that has nothing to do necessarily
22	initiation and aspects of its progression. But I	22	with the events that cause the cancer. Right?
23	did not say that ovarian cancer is caused by	23	MS. O'DELL:
24	inflammation.	24	Object to the form.
	Page 263		Page 265
1	MS. BROWN:	1	A Well, so the we we would be going
2	Q And what scientific support do you have		
	2 This what scientific support do you have	2	down a slightly different road. And if
3	for your opinion that inflammation is a component	2 3	down a slightly different road. And if we're so cancer as a complex disorder, you
3 4	= = :		
	for your opinion that inflammation is a component	3	we're so cancer as a complex disorder, you
4	for your opinion that inflammation is a component of ovarian cancer and can be attributed to	3 4	we're so cancer as a complex disorder, you know, begins with an initiating event. But there
4 5	for your opinion that inflammation is a component of ovarian cancer and can be attributed to aspects of ovarian cancer, including its initiation? A So, again, the synthesis of the of	3 4 5	we're so cancer as a complex disorder, you know, begins with an initiating event. But there is there is absolutely tumor evolution from
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	Page 266		Page 268
1	majority of the plaintiff expert reports in this	1	available data that there is a biologically
2	litigation. Did you see that?	2	plausible mechanism surrounding and, indeed, in
3	MS. O'DELL:	3	the previous paragraph at the end of it where
4	Object to the form. If you know that.	4	they discuss use of or expression of
5	Don't speculate.	5	cyclooxygenase 1 and 2 as well as the action of
6	MS. BROWN:	6	NSAIDs, again, supportive of somewhat
7	Q That's why I asked "Did you see that?"	7	supportive of the inflammatory model. But
8	A So I didn't specifically look at if	8	MS. BROWN:
9	this was referenced. I I certainly referenced	9	Q Well, as it relates to the NSAIDs,
10	it. But I would also point out another important	10	Doctor, they point to the fact that the NSAID
11	part of the of this same reference, a about	11	data is inconsistent, at best, as evidence
12	halfway down the following paragraph, beginning	12	supportive of their conclusions that the
13	with "If chronic inflammation due to ascending	13	mechanism is unclear; right?
14	foreign bodies is indeed the mechanism by which	14	A No. They point to it as they
15	talc use is associated with ovarian cancer risks,	15	actually try to clarify that the the seemingly
16	then these results fit the picture."	16	contradictory data regarding the NSAID use can be
17	So I think the authors were both	17	explained by the relatively low expression of
18	describing some things that remain unclear but	18	cyclooxygenase 1 and cyclooxygenase 2, which are
19	also offering some comments that are supportive	19	the targets of most common NSAIDs.
20	of our earlier discussions today on this	20	Q What they say is that the use of
21	mechanism.	21	nonsteroidal anti-inflammatory drugs, NSAIDs, is
22	Q And your opinion here today, Doctor, is	22	not inversely associated with the incidence of
23	limited to the potential mechanism; right?	23	ovarian cancer as may be expected if the etiology
24	MS. O'DELL:	24	was related to chronic inflammation. Right?
	Page 267		Page 269
1	Page 267 Object to the form.	1	Page 269 MS. O'DELL:
1 2		1 2	
	Object to the form.		MS. O'DELL:
2	Object to the form. A So my my opinion is is is	2	MS. O'DELL: Objection to form.
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2 3 4	Object to the form. A So my my opinion is is is regarding a biologically plausible mechanism. But, then and, in doing so, have reviewed some	2 3 4	MS. O'DELL: Objection to form. A Yes, that statement is made. But, importantly, it is incomplete without the next
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2 3 4 5 6 7	Object to the form. A So my my opinion is is is regarding a biologically plausible mechanism. But, then and, in doing so, have reviewed some of these studies that we're discussing now. MS. BROWN: Q Good.	2 3 4 5 6 7	MS. O'DELL: Objection to form. A Yes, that statement is made. But, importantly, it is incomplete without the next sentence, again, explaining that that apparent that apparent question. So if the if NSAIDs are not
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Shawn Levy, Ph.D.

	Page 270		Page 272
1	relates to NSAIDs; right?	1	statement.
2	MS. O'DELL:	2	And then there was, I think,
3	Object to the form.	3	importantly, the Lin 2011 paper is also relevant.
4	A Not not necessarily. So there's	4	Q Well, as it relates to the Merritt
5	getting back to the the specific cells under	5	paper, this cite is wrong; right?
6	question and the inflammatory response being	6	A I need a moment to
7	examined. And, so, if we are lowering overall	7	Q Let's look at what Merritt actually
8	chronic inflammation through the use of an NSAID	8	found about pelvic inflammatory disease.
9	is is one question. A separate question is is	9	If you look
10	a is a ovarian cancer cell responsive to	10	MS. O'DELL:
11	NSAIDs. So they're two separate biological	11	If you need a moment
12	phenomenon.	12	Excuse me. I'm sorry. I didn't mean
13	And, in one case, if those cells are	13	to interrupt you.
14	not expressing the cyclooxygenase 1 and 2,	14	If you need a moment to refresh
15	they'll be nonresponsive.	15	yourself, Dr. Levy, please do.
16	I would speculate that NSAID use in the	16	MS. BROWN:
17	rest of the body would still result in the	17	Q Sure. And if you when you're ready,
18	expected effect due to, you know, the due to	18	Doctor, I'll direct you to the second column on
19	the inhibition of cyclooxygenase 1 and 2.	19	page 174, and I want to talk about the last
20	So I don't think they're necessarily in	20	paragraph there that begins "if inflammation."
21	conflict with each other.	21	A Page?
22	(DEPOSITION EXHIBIT NUMBER 20	22	Q And I'll read it into the record while
23	WAS MARKED FOR IDENTIFICATION.)	23	you orient yourself. It's page 174, right-hand
24	MS. BROWN:	24	column. Final paragraph states, "If inflammation
1	Q Handing you what we've marked as	1	plays a role in the etiology of ovarian cancer,
2	Defense Exhibit 20 to your deposition, this is a	2	then it would be expected that PID would be
3	paper by Merritt entitled "Talcum Powder Chronic	3	associated with increased risks of ovarian
4	Pelvic Inflammation and NSAIDs in Relation to the	4	cancer. PID is not associated with elevated risk
5	Risk of Epithelial Ovarian Cancer."	5	of ovarian tumors in our data, confirming several
6	Do you see that?	6	previous reports of no association with PID in
7	A I do.	7	studies of all subtypes of ovarian cancer."
8	Q And, in fact, on page 12 of your	8	Did I read that correctly?
9	report, you cite this Merritt article. Correct?	9	A You did.
10	A Yes. Uh-huh.	10	Q All right. So you cited this study for
11	Q And you cite it for the proposition	11	the proposition that studies have found a
12	that studies have found a relationship between	12	relationship between PID and ovarian cancer risk.
13	pelvic inflammatory disease and ovarian cancer	13	Right?
14	risk. Correct?	14	A No. I said I cited I said
15	A Correct.	15	studies have found a relationship, yes, between
16	MS. O'DELL:	16	PID and ovarian cancer risk.
17	Object to the form.	17	Q And, in fact, this study did not find a
18	MS. BROWN:	18	relationship between PID and ovarian cancer risk.
19	Q And you point to Merritt when you	19	Right?
20	determine here as a finding of a relationship	20	A I think this study found a I'm just
21	between pelvic inflammatory disease and ovarian	21	looking at the
22	cancer in support of your opinion that	22	So I'm sorry. Would you ask your
23	inflammation can cause ovarian cancer. True?	23	question again? This this study did not
24	A I'd have to double-check that	24	find your
	I d lia to dodolo vilovit tilut	1	11114) 501

69 (Pages 270 to 273)

	Page 274		Page 276
1	Yes, I	1	quote, "We conclude that, on balance, chronic
2	Q Sure. I just you cited this study	2	inflammation does not play a major role in the
3	for the proposition that it showed there was a	3	development of ovarian cancer."
4	relationship between pelvic inflammatory disease	4	Q Do you see that, Doctor?
5	and ovarian cancer risk, but, in fact, the study	5	A I see that.
6	showed the opposite. Correct?	6	Q And what this study did was it
7	A Well, to be clear on the wording,	7	endeavored to look into factors potentially
8	stated that the studies have found a	8	associated with ovarian inflammation to see if it
9	relationship. I didn't indicate whether it was	9	could support the theory that chronic
10	positive or negative.	10	inflammation plays a role in ovarian cancer;
11	But I think, importantly, the study	11	right?
12	also has an important paragraph that is probably	12	MS. O'DELL:
13	more related to its inclusion, which is on the	13	Object to the form.
14	same page we were just on, 174, second full	14	A I would need to this one limitation
15	paragraph in the discussion.	15	of this particular paper is that it is connecting
16	Q One of the things on this page,	16	inflammation as evidenced by pelvic inflammatory
17	Doctor	17	disease and assuming that that source and type of
18	MS. O'DELL:	18	inflammation would be the fact that there's
19	Are you finished, Doctor?	19	not a direct association between or an
20	A I think important to at least finish	20	increased risk of ovarian cancer in the presence
21	that thought.	21	of pelvic inflammatory disease; therefore,
22	That paragraph reads, "Focusing on talc	22	inflammation must not play a role in ovarian
23	use, we found that any use of perineal talc was	23	cancer. So that is their conclusions.
24	associated with a small but significantly	24	MS. BROWN:
	Page 275		Page 277
1	Page 275	1	Page 277
1 2	increased risk of ovarian cancer overall and	1 2	Q Well, they looked at a bunch of
2	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous	2	Q Well, they looked at a bunch of different inflammatory conditions, didn't they?
2	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with	2 3	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors
2 3 4	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This	2 3 4	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different
2 3 4 5	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous	2 3 4 5	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they
2 3 4 5 6	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies."	2 3 4 5 6	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall
2 3 4 5 6 7	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the	2 3 4 5 6 7	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that?
2 3 4 5 6 7 8	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been	2 3 4 5 6 7 8	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more
2 3 4 5 6 7 8 9	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies	2 3 4 5 6 7 8	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their
2 3 4 5 6 7 8 9	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic	2 3 4 5 6 7 8 9	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the
2 3 4 5 6 7 8 9 10	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't	2 3 4 5 6 7 8 9 10	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do
2 3 4 5 6 7 8 9 10 11	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't exclude or refute the inflammatory role or the	2 3 4 5 6 7 8 9 10 11 12	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do with talc exposure and perineal talc use, I think
2 3 4 5 6 7 8 9 10 11 12 13	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't exclude or refute the inflammatory role or the role inflammation may play in ovarian cancer.	2 3 4 5 6 7 8 9 10 11 12 13	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do with talc exposure and perineal talc use, I think their their statements in that sense, which
2 3 4 5 6 7 8 9 10 11 12 13 14	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't exclude or refute the inflammatory role or the role inflammation may play in ovarian cancer. Q What this study concludes is that, on	2 3 4 5 6 7 8 9 10 11 12 13	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do with talc exposure and perineal talc use, I think their their statements in that sense, which have already been read, quite stand on their own.
2 3 4 5 6 7 8 9 10 11 12 13 14 15	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't exclude or refute the inflammatory role or the role inflammation may play in ovarian cancer. Q What this study concludes is that, on balance, chronic inflammation does not play a	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do with talc exposure and perineal talc use, I think their their statements in that sense, which have already been read, quite stand on their own. So what this may indicate is a variety
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't exclude or refute the inflammatory role or the role inflammation may play in ovarian cancer. Q What this study concludes is that, on balance, chronic inflammation does not play a major role in the development of ovarian cancer. Do you recall reviewing this in connection with	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do with talc exposure and perineal talc use, I think their their statements in that sense, which have already been read, quite stand on their own. So what this may indicate is a variety of types of inflammation do as present in other diseases, those individually do not or may
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't exclude or refute the inflammatory role or the role inflammation may play in ovarian cancer. Q What this study concludes is that, on balance, chronic inflammation does not play a major role in the development of ovarian cancer. Do you recall reviewing this in connection with your opinions in this case? MS. O'DELL: Object to the form. Misstates the exhibit.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do with talc exposure and perineal talc use, I think their their statements in that sense, which have already been read, quite stand on their own. So what this may indicate is a variety of types of inflammation do as present in other diseases, those individually do not or may not have a specific role in the progression of ovarian cancer. But it does not again, it does not mean that ovarian inflammation at the site of
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't exclude or refute the inflammatory role or the role inflammation may play in ovarian cancer. Q What this study concludes is that, on balance, chronic inflammation does not play a major role in the development of ovarian cancer. Do you recall reviewing this in connection with your opinions in this case? MS. O'DELL: Object to the form. Misstates the exhibit. MS. BROWN:	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do with talc exposure and perineal talc use, I think their their statements in that sense, which have already been read, quite stand on their own. So what this may indicate is a variety of types of inflammation do as present in other diseases, those individually do not or may not have a specific role in the progression of ovarian cancer. But it does not again, it does not mean that ovarian inflammation at the site of talc exposure in the ovary can't have a role in
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	increased risk of ovarian cancer overall and specifically amongst the invasive and LNP serous tumors, although no clear dose response with increase in duration of use was identified. This finding is consistent with results of previous studies." So in the case of the report and the biologically plausible mechanism that's been supported by these studies, these studies differentiating the process of pelvic inflammatory disease doesn't ex doesn't exclude or refute the inflammatory role or the role inflammation may play in ovarian cancer. Q What this study concludes is that, on balance, chronic inflammation does not play a major role in the development of ovarian cancer. Do you recall reviewing this in connection with your opinions in this case? MS. O'DELL: Object to the form. Misstates the exhibit.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q Well, they looked at a bunch of different inflammatory conditions, didn't they? That was the focus of the study. The authors endeavored to look at a number of different pro-inflammatory factors and see if they influenced ovarian cancer. Do you recall reviewing that? A I do. I think but, more importantly, when we look at the their specific statements that are surrounding the mechanism we're discussing today, which has to do with talc exposure and perineal talc use, I think their their statements in that sense, which have already been read, quite stand on their own. So what this may indicate is a variety of types of inflammation do as present in other diseases, those individually do not or may not have a specific role in the progression of ovarian cancer. But it does not again, it does not mean that ovarian inflammation at the site of

Shawn Levy, Ph.D.

I	Page 278		Page 280
1	now connecting independent biological processes.	1	couple times, and that's a 1.17 relative risk
2	And I think you're I want to be sure	2	that you're referring to. Is that right?
3	we're clear and not drawing the use of the word	3	A Where is that?
4	"chronic inflammation" as meaning any	4	Q I'm looking at in the abstract.
5	inflammation and, therefore, if it's not	5	A Yes.
6	associated with ovarian cancer, that inflammation	6	Q Right. And the confidence interval is
7	can't have a role.	7	1.01 to 1.36. Right?
8	What we're speaking about in terms of	8	A Correct.
9	this mechanism is inflammation caused by the	9	MS. O'DELL:
10	perineal use of talcum powder in the ovary and	10	As to what finding?
11	the and the to explain that increased risk	11	MS. BROWN:
12	of ovarian cancer, what is a plausible mechanism.	12	The one we're discussing.
13	Q The authors write, on page 74 174,	13	Q And, Doctor, you know that one a
14	Doctor, second column, paragraph that begins with	14	confidence interval that begins with one is not
15	"It has been hypothesized," "It has been	15	statistically significant?
16	hypothesized that talc is linked to ovarian	16	MS. O'DELL:
17	cancer development through inflammation," comma,	17	Object to the form.
18	"however evidence linking an inflammatory	18	MS. BROWN:
19	response with talc contamination of the ovaries	19	Q Did you know that?
20	is lacking."	20	MS. O'DELL:
21	Do you see that?	21	Object to the form.
22	A I do.	22	A Well, I would say the authors have
23	Q And you disagree with that statement?	23	stated in that abstract that it is statistically
24	A I would I would suggest that a	24	significant.
	Page 279		Page 281
1	number of studies in the literature since the	1	MS. BROWN:
2	publication of this paper would would suggest	2	Q Sure, because it's 1.01. My question
3	1 1 2		O Buie, because it's 1.01. My question
	that these conclusions may have been premature.		
4	that these conclusions may have been premature. O Do you think that, at the time this	3 4	to you was do you know that a confidence interval
	Q Do you think that, at the time this	3	to you was do you know that a confidence interval that begins with one is not statistically
4	Q Do you think that, at the time this paper was published in 2008, that Merritt was	3 4	to you was do you know that a confidence interval that begins with one is not statistically significant?
4 5	Q Do you think that, at the time this paper was published in 2008, that Merritt was accurately representing the data as it related to	3 4 5	to you was do you know that a confidence interval that begins with one is not statistically significant? This finding, Doctor, is barely
4 5 6 7	Q Do you think that, at the time this paper was published in 2008, that Merritt was accurately representing the data as it related to whether chronic inflammation could play a role in	3 4 5 6 7	to you was do you know that a confidence interval that begins with one is not statistically significant? This finding, Doctor, is barely statistically significant, isn't it?
4 5 6	Q Do you think that, at the time this paper was published in 2008, that Merritt was accurately representing the data as it related to	3 4 5 6	to you was do you know that a confidence interval that begins with one is not statistically significant? This finding, Doctor, is barely statistically significant, isn't it? MS. O'DELL:
4 5 6 7 8	Q Do you think that, at the time this paper was published in 2008, that Merritt was accurately representing the data as it related to whether chronic inflammation could play a role in the development of ovarian cancer?	3 4 5 6 7 8	to you was do you know that a confidence interval that begins with one is not statistically significant? This finding, Doctor, is barely statistically significant, isn't it? MS. O'DELL: Object to the form.
4 5 6 7 8 9	Q Do you think that, at the time this paper was published in 2008, that Merritt was accurately representing the data as it related to whether chronic inflammation could play a role in the development of ovarian cancer? MS. O'DELL: Object to the form.	3 4 5 6 7 8 9	to you was do you know that a confidence interval that begins with one is not statistically significant? This finding, Doctor, is barely statistically significant, isn't it? MS. O'DELL: Object to the form. A Again again, it's a whether it's
4 5 6 7 8 9	Q Do you think that, at the time this paper was published in 2008, that Merritt was accurately representing the data as it related to whether chronic inflammation could play a role in the development of ovarian cancer? MS. O'DELL: Object to the form.	3 4 5 6 7 8	to you was do you know that a confidence interval that begins with one is not statistically significant? This finding, Doctor, is barely statistically significant, isn't it? MS. O'DELL: Object to the form. A Again again, it's a whether it's barely or whether it's tremendously statistically
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Page 284 Page 282 1 development of ovarian cancer." 1 Again, the observations in this paper 2 And my question for you is what 2 are regarding chronic inflammation and its -- and 3 3 methodology did you employ to consider the its major role in the development of ovarian 4 findings of the Merritt paper in coming to your 4 cancer; and, again, in this -- in the specific 5 opinions contained in your report? 5 individuals that they've looked at, it's in 6 MS. O'DELL: 6 regards to pelvic inflammatory disease. 7 7 Object to the form. And, so, as far as weighting that 8 Again, as we've discussed earlier here 8 paper, it would be similar to other papers and 9 9 today, the -- there's been no singular paper that other observations in the sense that it was --10 had a specific role in -- in developing the 10 that the mechanism that is supported by a wide 11 biologically plausible mechanism contained in the 11 variety of work considers a history of -- history 12 report. And, so, this -- this paper, among many 12 of work in the tale, inflammation, and ovarian 13 13 others, was -- was used. cancer fields both in basic research and 14 MS. BROWN: 14 epidemiology to come up -- to come to the 15 Right. But the findings of this paper 15 conclusions and mechanisms that are proposed. 16 is that talcum powder doesn't produce an 16 I don't -- I can't give you a specific 17 17 inflammatory response that leads to cancer. weighting algorithm that was used on any -- any 18 Right? 18 given paper. 19 Α 19 MS. BROWN: The -- the findings of this paper was 20 that there's not an association of pelvic 20 Did you consider Merritt's finding that 21 inflammatory disease and risk of ovar- -- of 21 evidence linking an inflammatory response with 22 epithelial ovarian cancer. 22 talc of the ovaries is lacking? 23 They conclude that chronic inflammation 23 I certainly considered their -- I 24 doesn't play a role in the development of ovarian 24 considered their statements in the -- in the Page 285 Page 283 1 paper. And I would question the dichotomy of 1 cancer; right? 2 I think they've -- they've extended 2 the -- of some of their statements regarding talc 3 3 that observation regarding pelvic inflammatory risk to cancer. 4 disease to that conclusion. 4 And the first question that would come 5 5 But I think the studies that have come to mind for this particular study is how they б 6 assessed talc-related inflammation in -after this and other -- certainly other areas of 7 7 review would suggest that those specific -- the specifically in the ovary. I don't recall seeing 8 8 wording of those specific statements may not be how they made that assessment. 9 the most appropriate representation of the -- of 9 It, instead, seemed to me that their the observations made in the -- in the Merritt 10 10 assessments were based on chronic inflammation as 11 11 paper. it related to other biological conditions and 12 12 Q So did you weight the Merritt paper then extrapolating that to rate of ovarian 13 13 less than some other papers that came after it? 14 Or how did you --14 How do you think one should measure Q 15 What I'm trying to understand is your 15 talc-related inflammation in the ovary? 16 methodology for considering this paper, which 16 MS. O'DELL: 17 17 seems to squarely conclude talc doesn't cause Object to the form. 18 18 Again, I wasn't asked to -- to provide inflammation. 19 MS. O'DELL: 19 that opinion. But I would reference the more 20 20 recent Saed paper which -- and other molecular --Object to the form. I'm not -- so I would -- I would 21 21 and other molecular studies and certainly defer Α 22 disagree that -- this paper does not make those 22 to Dr. Saed as an expert witness to discuss 23 23 conclusions that talc does not cause appropriate measurements for talc-related 24 inflammation. What they --24 inflammation in the -- in the ovary or ovarian

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Shawn Levy, Ph.D.

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2 MS. O'DELL: 3 Object to the form. 4 A I wouldn't have a basis for that 5 opinion. As as we talked about earlier, I 6 haven't shared this mechanism to ask for that 2 A She has a view on 3 In her report was a a view on mechanism on mechanism, which incomplete the properties of in ovarian cancer, which parallels this response are in ovarian cancer, which parallels this response are in ovarian cancer, which parallels this response are in ovarian cancer.	
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6 haven't shared this mechanism to ask for that 6 in ovarian cancer, which parallels this r	
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8 MS. BROWN: 8 Q Do you consider your proposed	mechanism
9 Q You haven't published the proposed 9 that is the subject of your report to be a	meenamsiii
mechanism that is the subject of your report. Is 10 concept in the scientific world?	
11 that right? 11 MS. O'DELL:	
12 A That's right. 12 Object to the form.	
13 Q You haven't discussed the proposed 13 A Which part?	
14 mechanism that is the subject of your report with 14 MS. BROWN:	
any of your colleagues at HudsonAlpha; correct? 15 Q Any part.	
16 A That's correct. 16 MS. O'DELL:	
17 Q So whether or not the proposed 17 Object to the form.	
18 mechanism that is the subject of your report 18 A Again, I my the what was	
would be accepted by your peers in the scientific 19 requested of me was not to develop a new scientific 19 requested of	novel
20 community, that's not something you have yet 20 concept or even to describe an untested	novel
21 evaluated; correct? 21 hypothesis. What was requested of me	novel
22 MS. O'DELL: 22 review the available literature and prov	novel s ovel
23 Object to the form. 23 biologically plausible mechanism for ta	novel s ovel was to
24 A My I wasn't requested to provide a 24 exposure to ovarian cancer. And, so, the	novel sovel was to ide a

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	Page 290		Page 292
1	what that's what my report provides.	1	for you here, Doctor, is, were was there any
2	MS. BROWN:	2	limitation placed on you that you relied on in
3	Q Do you think there could be other	3	trying to develop your biologically plausible
4	biologically plausible mechanisms by which talcum	4	mechanism?
5	powder would be associated with ovarian cancer?	5	MS. O'DELL:
6	A I haven't been asked to to make a	6	What's allowed you're well aware of
7	review related to other biological mechanisms. I	7	this, counsel, I know that what's discoverable
8	was asked to develop a biologically plausible	8	is are there materials considered you can ask
9	mechanism. And upon review of the totality of	9	him that was there assumptions that he was
10	the literature, this mechanism that that I've	10	asked to make that's discoverable and the
11	presented and provided in the report is, in my	11	compensation. Those are the three things. Not
12	opinion, the correct mechanism.	12	conversations between counsel and Dr. Levy.
13	Q Did you have complete autonomy in your	13	So
14	task to develop a biologically plausible	14	MS. BROWN:
15	mechanism?	15	Counsel, you can instruct or we'll get
16	A Yes.	16	the judge. We do not have time for your
17	Q Were there any limitations on how you	17	speeches. We're trying to finish up and let
18	should go about developing this biologically	18	other people other people ask questions.
19	plausible limita mechanism?	19	MS. O'DELL:
20	MS. O'DELL:	20	That's straight from the rules. You're
21	Object to the form of the question to	21	well aware of that.
22	the degree that the question seeks	22	MS. BROWN:
23	MS. BROWN:	23	So here's the question. If you want to
24	Form.	24	instruct, we'll take a break and get the judge.
	Page 291		Page 293
1	Page 291	1	Page 293
1	MS. O'DELL:	1 2	Q Did you rely on any instruction from
2	MS. O'DELL: No, no. If it goes to conversations	2	Q Did you rely on any instruction from counsel regarding any limitations on how you were
2	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is	2 3	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible
2 3 4	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected.	2 3 4	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism?
2 3 4 5	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected.	2 3 4 5	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided
2 3 4 5 6	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected. And, so, Dr. Levy	2 3 4 5 6	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided there were no
2 3 4 5 6 7	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected. And, so, Dr. Levy MS. BROWN:	2 3 4 5 6 7	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided there were no I'm trying to make sure I answer to be
2 3 4 5 6 7 8	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected. And, so, Dr. Levy MS. BROWN: No. Counsel	2 3 4 5 6 7 8	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided there were no I'm trying to make sure I answer to be correct. But my very simple and direct answer is
2 3 4 5 6 7 8 9	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected. And, so, Dr. Levy MS. BROWN: No. Counsel MS. O'DELL:	2 3 4 5 6 7 8	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided there were no I'm trying to make sure I answer to be correct. But my very simple and direct answer is the requests for the report were very succinct
2 3 4 5 6 7 8 9	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected. And, so, Dr. Levy MS. BROWN: No. Counsel MS. O'DELL: Excuse me. Excuse me. I'm directing	2 3 4 5 6 7 8 9	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided there were no I'm trying to make sure I answer to be correct. But my very simple and direct answer is the requests for the report were very succinct and were given without limitation.
2 3 4 5 6 7 8 9 10	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected. And, so, Dr. Levy MS. BROWN: No. Counsel MS. O'DELL: Excuse me. Excuse me. I'm directing my witness based on privilege, and I can do that.	2 3 4 5 6 7 8 9 10	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided there were no I'm trying to make sure I answer to be correct. But my very simple and direct answer is the requests for the report were very succinct and were given without limitation. Q Did you try to develop any mechanism
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2 3 4 5 6 7 8 9 10 11 12 13	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected. And, so, Dr. Levy MS. BROWN: No. Counsel MS. O'DELL: Excuse me. Excuse me. I'm directing my witness based on privilege, and I can do that. To the degree that counsel is trying to seek the substance of discussions you had with	2 3 4 5 6 7 8 9 10 11 12 13	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided there were no I'm trying to make sure I answer to be correct. But my very simple and direct answer is the requests for the report were very succinct and were given without limitation. Q Did you try to develop any mechanism that you rejected in connection with your report? MS. O'DELL:
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2 3 4 5 6 7 8 9 10 11 12 13 14 15	MS. O'DELL: No, no. If it goes to conversations with counsel, it is not form. It is attorney-client privilege and it's protected. Work product privilege is protected. And, so, Dr. Levy MS. BROWN: No. Counsel MS. O'DELL: Excuse me. Excuse me. I'm directing my witness based on privilege, and I can do that. To the degree that counsel is trying to seek the substance of discussions you had with counsel, those are protected, and I direct you not to answer.	2 3 4 5 6 7 8 9 10 11 12 13 14	Q Did you rely on any instruction from counsel regarding any limitations on how you were to attempt to develop your biologically plausible mechanism? A No. I was I was not provided there were no I'm trying to make sure I answer to be correct. But my very simple and direct answer is the requests for the report were very succinct and were given without limitation. Q Did you try to develop any mechanism that you rejected in connection with your report? MS. O'DELL: Object to the form. Vague. A So I would best answer that by saying I
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	Page 294		Page 296
1	Q Do you consider the biologically	1	mechanism, you mean other experts in this
2	plausible mechanism that is the subject of your	2	litigation?
3	report to be a hypothesis?	3	MS. O'DELL:
4	MS. O'DELL:	4	Object to the form. Misstates his
5	Object to the form. Asked and	5	testimony.
6	answered.	6	A Other other material the
7	A No, no. In fact, it is not. And	7	materials that I was that I was provided.
8	it's I think it's very fundamentally different	8	MS. BROWN:
9	than a hypothesis.	9	Q And those materials are in the form of
10	Because, again, to state, the	10	other expert reports like yours; right?
11	activities that were undertaken was a review of	11	MS. O'DELL:
12	the literature and then, based on that review, a	12	Object to the form.
13	mechanism that was biologically plausible. It is	13	A They are.
14	not hypothetical.	14	MS. BROWN:
15	MS. BROWN:	15	Q Are you aware of any nonlitigation
16	Q Have you tested your biologically	16	expert that has arrived at the same biologically
17	plausible mechanism?	17	plausible proposed mechanism as you?
18	MS. O'DELL:	18	MS. O'DELL:
19	Object to the form.	19	Object to the form.
20	A Tested in the sense of	20	A Well, I think yeah, in the sense
21	So I would I would answer that as	21	in the sense of the number of publications we've
22	in in my opinion, I would suggest that this	22	been discussing and some of the more recent both
23	has been tested based on following the completion	23	reviews and and Saed's paper, I suppose, as
24	of the report and reading other similarly derived	24	* * * * * * * * * * * * * * * * * * * *
4 1	of the report and reading other similarly derived	24	we've been discussing, Dr. Saed has been funded
<u> </u>		24	-
	Page 295		Page 297
1	Page 295 or similarly requested both literature, some of	1	Page 297 for some of this work, but I would counter that
1 2	Page 295 or similarly requested both literature, some of the publications that we've been discussing, as	1 2	Page 297 for some of this work, but I would counter that with sponsorship of of studies that are
1 2 3	or similarly requested both literature, some of the publications that we've been discussing, as well as other expert reports that have, as we've	1 2 3	Page 297 for some of this work, but I would counter that with sponsorship of of studies that are subsequently peer-reviewed, I think are generally
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Page 298 Page 300 1 was whether or not Dr. Saed disclosed that 1 Q Why is it important, in your mind, to 2 relationship, which is, of course, ethically a 2 disclose funding for a study? 3 requirement for sponsored research. And, indeed, 3 Well, it's, you know, ethical premise 4 4 that sponsorship is made in the paper. of -- of most scientific research or really all 5 MS. BROWN: 5 extramurally funded research that the funding 6 sources are -- are always disclosed. And that's 6 Was it important to you --7 7 Did you ask Dr. Saed about the funding true for publication as well as presentation. 8 for his paper? 8 And, so, I think most -- most 9 I did not. As we -- as we discussed, I 9 scientists, during presentation, will present a Α 10 10 haven't spoken with him. slide that shows their -- their funning support 11 Were you troubled by the fact that 11 and all of its sources regard- -- whether it's 12 Dr. Saed's disclosure does not reference which 12 public or private. 13 13 And then you'll notice in vast majority side of the litigation he's working for? 14 MS. O'DELL: 14 of publications, if they are grant supported, 15 15 Object to the form. again, whether that grant is from a public or a 16 private institution, those things are referenced. 16 Are you asking for my opinion on if it Α 17 17 And, in fact, the U.S. Government has a troubled me? requirement that grants be referenced in their --18 18 MS. BROWN: 19 19 in any publications that were supported by that Q Yeah. 20 20 No. money. Α 21 Q Do you have any critiques of either of 21 It sounds like you did a little 22 2.2 investigation and you were satisfied with the Saed's papers? 23 No. Not at this time. 23 disclosure. Was that your testimony? Α 24 Q Do you have any questions or anything 24 MS. O'DELL: Page 299 Page 301 1 1 Object to the form. He didn't use the that doesn't make sense to you, having reviewed 2 word "investigation." 2 the most recent one or the 2017 one? 3 I was satisfied seeing a disclosure 3 No. My focus, particularly on the most made regarding funding, which, again, in the 4 4 recent one, I actually found his molecular 5 5 scientific climate I would -- or I would state studies to be quite comprehensive and --6 6 simply I viewed the support of that study which So there was -- there was no specific 7 subsequently goes out to peer review functionally 7 concerns that -- that I was able to identify. 8 equivalent to pharmaceutical support of a study 8 And, again, the -- in the -- in the version of 9 involving a drug or a condition or a treatment. 9 the paper that -- that I -- that I was given. 10 The reality of the scientific space 10 And did you have any opportunity to 11 is -- is -- is funding sponsorship comes from a 11 check to see if you had an earlier version of 12 12 variety of cases. And in each institution, that paper? 13 HudsonAlpha certainly, I'm positive Wayne State 13 Oh, I -- I'll be sure and do that at Α 14 has a conflict of interest review board which 14 the next break. 15 Dr. Saed has to report to as far as the -- how he 15 Okay. Why don't we go ahead and take a 16 manages that potential conflict of interest. And 16 break now. You'll take a look, if you wouldn't 17 17 given that he's at a reputable institution that mind, to see if you have something other than 18 I've actually done a fair amount of review work 18 what we've marked at the deposition. 19 with over the years, being Wayne State, I'm 19 I'm going to renew -- review my notes. 20 reasonably -- or I would say I'm quite confident 20 I'm close to finishing, and then I'll hand it 21 21 over to my colleague, Mr. Ferguson, who I think that his conflict of interest has been managed 22 appropriately for the -- for the study that was 22 will have some questions for you as well. Okay, 23 reviewed. 23 Doctor? 24 MS. BROWN: 24 Α Uh-huh.

76 (Pages 298 to 301)

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Shawn Levy, Ph.D.

	Page 302		Page 304
1	Q Thank you, Doctor.	1	MS. BROWN:
2	VIDEOGRAPHER:	2	Q And if that's not the one you were
3	Going off the record. The time is 3:33	3	thinking of, Doctor, we can move on.
4	p.m.	4	A I was thinking Henderson 1971.
5	(OFF THE RECORD.)	5	Q And that's not an animal study; right?
6	VIDEOGRAPHER:	6	A Maybe this this isn't the same one,
7	We're back on the record. The time is	7	then. I can certainly find it at the end if
8	3:48 p.m.	8	The it was a 1971 study involving a
9	MS. BROWN:	9	rat model that the major point and conclusion of
10	Q Welcome back, Doctor.	10	the study was perhaps something that we've
11	Did you have an opportunity to take a	11	discussed that's been now well accepted that the
12	look if you had an earlier version of Dr. Saed's	12	tale can migrate, after exposure, into the
13	manuscript?	13	ovarian tissue.
14	A I did.	14	Q Are you aware of any study, Doctor,
15	I did not.	15	that talc on the exterior of a woman's vagina can
16	Q Okay. And, so, during this deposition,	16	migrate up the fallopian tubes to the ovary?
17	you've referred from time to time to Dr. Saed's	17	MS. O'DELL:
18	2018 paper. Is that right?	18	Object to the form.
19	A (Nods affirmatively.)	19	A I am not aware of a study that tested
20	MS. O'DELL:	20	
21	Object to the form. Excuse me.	21	that specifically. MS. BROWN:
22	MS. BROWN:		
23	Q And you received that paper after you	22	Q And did you consider, in connection
24	authored your report in this case; right?	23	with your opinions here, IARC's finding that the
24	audiored your report in this case, right?	24	science regarding migration is, quote, "weak"?
	Page 303		Page 305
1	MS. O'DELL:	1	MS. O'DELL:
2	Object to the form.	2	Object to the form.
3	A So I was referring	3	A My my primary consideration of IARC
4	Yes. I I the manuscript we were	4	was their classification of the talc and the
5	discussing was received after the completion of	5	and the fibrous tale, and I don't recall their
6	this. But, as we discussed earlier, the	6	conclusions of the migration science being weak.
7	materials in the paper were presented in abstract	7	And, in fact, it appears, as stated by
8	form or long abstract form, and those are	8	the FDA, that the the migration question is
9	referenced in the report.	9	is well resolved.
10	MS. BROWN:	10	MS. BROWN:
11	Q And just to close the loop on one thing	11	Q Finally, Doctor, in connection with
12	before I hand it over to my colleague,	12	your opinions in this case, did you consider
13	Mr. Ferguson, you had referenced an animal study	13	articles regarding whether stick lesions evidence
14	by Woodruff earlier in the day. Do you remember	14	inflammation?
15	that?	15	A I'd have to review some of the
16	A Yes.	16	literature for stick lesions specifically. But
17	Q That paper doesn't have anything to do	17	that
18	with talc; right?	18	Can you what are you referring to by
19	MS. O'DELL:	19	stick lesions?
20	Object to the form.	20	Q So do you understand that it's now
21	A Let me	21	believed, in terms of the where ovarian cancer
22	Yes, I you're the Woodruff 1979	22	begins, that it begins in the fallopian tubes,
23	paper is not the one I was I was wrong on the	23	epithelial ovarian cancer?
24	author. Give me a moment to	24	A I certainly would agree that a the
		I	

77 (Pages 302 to 305)

Shawn Levy, Ph.D.

	Page 306		Page 308
1	site of initiation, whether that it can begin	1	the Genomic Services Laboratory
2	in the fallopian tubes, yes, that there's been	2	Right? There's one of those at
3	studies that have shown that evidence.	3	HudsonAlpha; right?
4	Q And some of the early lesions that have	4	A There is.
5	been found in the fallopian tubes are sometimes	5	Q Do you perform services there such as
6	referred to as stick lesions. Are you familiar	6	running clinical samples to report results to
7	with that?	7	healthcare providers? Is that the kind of things
8	MS. O'DELL:	8	you do?
9	Object to the form.	9	A To be to be clear and to,
10	A I'm not.	10	importantly, differentiate the regulated lab
11	MS. BROWN:	11	versus the research laboratory, the Genomic
12	So you haven't looked at any studies	12	Services Laboratory is a is a entity of
13	that have looked at stick lesions that have been	13	HudsonAlpha that is responsible for research
14	removed from women to see if there was any	14	activities.
15	evidence of inflammation?	15	There is a separate wholly owned
16	MS. O'DELL:	16	subsidiary of HudsonAlpha creatively named the
17	Object to the form.	17	Clinical Services Laboratory. So that laboratory
18	A That that I don't recall that as	18	is the laboratory that performs the testing. And
19	part of the review.	19	to hopefully not provide a level of confusion,
20	MS. BROWN:	20	but the two laboratories coexist in the same
21	Q Fair enough.	21	space. And what this means is I have staff and
22	No further questions. I'll hand it	22	equipment. Some is dedicated to clinical, some
23	over to Mr. Ferguson.	23	is dedicated to research, and some are shared
24	MR. FERGUSON:	24	between the two.
	200		7 200
	Page 307		Page 309
1	Thank you.	1	So, in summary, the best way to
2			
	EXAMINATION	2	consider the laboratory is that it's a clinical
3	BY MR. FERGUSON:	2 3	consider the laboratory is that it's a clinical regulated laboratory that also performs research.
3 4	BY MR. FERGUSON: Q Good afternoon, Dr. Levy. My my	3 4	consider the laboratory is that it's a clinical regulated laboratory that also performs research. Any projects under that research
3 4 5	BY MR. FERGUSON: Q Good afternoon, Dr. Levy. My my name is Ken Ferguson, and I represent Imerys in	3 4 5	consider the laboratory is that it's a clinical regulated laboratory that also performs research. Any projects under that research umbrella are referred to as being in the Genomic
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	BY MR. FERGUSON: Q Good afternoon, Dr. Levy. My my name is Ken Ferguson, and I represent Imerys in this matter. Do you know who Imerys is? A Only that they're a mining company. Q Okay. And I have some questions for you. I apologize for my voice. I've kind of had my allergies and then going into a cold, so it's kind of kind of stuffy. So I apologize. If you have trouble hearing me or understanding me, let me know. Okay? A Okay. Q And and just I know you've been at this with Miss Brown for a little while, but if there's any question that you don't understand that I'm asking you, just let me know, and I'll restate it so I can make sure that we're communicating. Okay? A Okay. Q I want to talk to you, first of all,	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	consider the laboratory is that it's a clinical regulated laboratory that also performs research. Any projects under that research umbrella are referred to as being in the Genomic Services Laboratory. Anything clinical is referred to the Clinical Services Laboratory. That lab has been CLIA-licensed now for going on five just past four years and has been CAP-accredited for three and a half. Q So is it the Clinical Services Laboratory, then, that would perform services like running clinical samples to get results to healthcare providers? A That's correct. Q And and among those things that the Clinical Services Laboratory does, is that restricted to whole genome sequencing? A Our currently the only publicly disclosed and validated test for the Clinical Services Laboratory is whole genome sequencing. We have two other laboratory-developed

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	Page 310		Page 312
1	trials, so they're not publicly available and to	1	of pre-reviews for tenure. There were no
2	date have not been publicly disclosed. They're	2	concerns with that progress. But, based on both
3	protected under confidentiality agreement.	3	funding as well as publication records, I wasn't
4	And the Clinical Services Laboratory	4	overly concerned with that.
5	this year will launch a number of other tests	5	But the opportunity to be able to do
6	that we have publicly disclosed. Those include	6	and the scale of operations at HudsonAlpha was
7	whole exome sequencing, an oncology panel known	7	was too good to turn down, as far as remaining at
8	as the TruSight Tumor 170, which profiles 170	8	Vanderbilt.
9	genes with that have been that have known	9	Q So you were neither granted tenure nor
10	involvement in cancer risk and progression, and	10	denied tenure. Is that fair to say?
11	as well as a 500 panel of similar form.	11	A That's fair to say.
12	Q So let me talk to you a little bit	12	I think the best evidence for the
13	about your prior position. You were at	13	relationship at Vanderbilt after my leaving was I
14	Vanderbilt University Medical Center; correct?	14	continued as an adjunct faculty in the same
15	A Correct.	15	department, again with change in title, for a
16	Q And you were an assistant professor?	16	number of years after joining HudsonAlpha. So it
17	Is that correct?	17	was a certainly, I wouldn't characterize it as
18	A The titles I held there was research	18	a negative departure from the institution. And I
19	assistant professor and then assistant professor,	19	still remain a collaborator with a number of
20	and then I was a associate professor as an	20	colleagues there.
21	adjunct faculty for a number of years after	21	Q Do you have a copy of your report in
22	joining HudsonAlpha. So I had to progress	22	front of you?
23	through a few of the academic ranks at	23	A I do.
24	Vanderbilt, but all of them in the professor	24	
24	valueront, but an or them in the professor	24	Q Okay. What I'm gonna do is I'm gonna
	Page 311		Page 313
1	realm.	1	try to go through, probably in in order,
2	Q As an assistant professor, were you	2	portions of your report that I want to ask about
3	appointed on a tenure track?	3	and try to make sure I don't cover things that
4	A Yes.	4	Miss Brown's already covered.
5	Q And do you know generally how many	5	Can you look at page 5 of your report?
6	years after appointment as an assistant professor	6	A Yes.
7	is a tenure decision at Vanderbilt typically made	7	Q So there and I'm looking at number 2
8	in that department?	8	on page 5, Acquired Somatic Gene Mutation.
9	A It varies from probably five to nine.	9	Do you see that?
10	Q Did you ever achieve tenure at	10	A I do.
11	Vanderbilt?	11	Q And you say there that
12	A Actually, I was up for tenure the year	12	I'm skipping the sentences. If you
13	that I moved to HudsonAlpha.	13	need to go back, feel free.
14	Q So	14	"Biological and lifestyle exposures,
15	A So, technically, I, which will sound	15	such as viruses, obesity, hormones and chronic
16	odd, I was promoted to associate professor upon	16	inflammation, are also known to result in
17	leaving.	17	cancer-causing mutations."
18	Q Okay.	18	Right?
19	A In an adjunct role.	19	A I see that sentence.
20	Q So were you turned down for tenure	20	Q Okay. Wouldn't you agree that the
21	or	21	association between obesity and cancer risk is
22	A I was not. I never I the	22	just that, an association and not a known
23	opportunity at HudsonAlpha predated the time that	23	cause-and-effect relationship?
1			
24	I would have gone up for tenure. I had a number	24	MS. O'DELL:

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	Page 314		Page 316
1	Object to the form.	1	A It varies. So the the
2	A I would state that it is known that	2	"inflammatory response" is a bit general. So
3	cancer rates increase in a number of unhealthy	3	depending on specific type of cellular
4	conditions, including obesity. But I am not	4	recruitment and cellular damage through the
5	aware of a of any studies that have	5	release of cytokines, the release of oxidative
6	illustrated a causal effect directly between	6	damaging materials from cells like granulocytes,
7	obesity and cancer.	7	you know, or the even the cell's own
8	MR. FERGUSON:	8	production of reaction to reactive oxygen
9	Q And, specifically, isn't it true that	9	species, such as from the mitochondria, which is
10	there is no direct in vivo experimental evidence	10	the most common sync or most common source of
11	that obesity causes cancer-causing mutations?	11	reactive oxygen species in the cell.
12	A I would have to review the literature	12	And, so, those are some examples of
13	to before answering that question. But the	13	of that relationship between an inflammatory
14	relationship between obesity and cancer risk	14	response and that cellular reaction.
15	is is quite well established. And I think for	15	Q Reactive oxygen species are not the
16	us to discuss that in more detail, we'd have to	16	same thing as inflammation; correct?
17	start delving into some of the specifics around	17	A I would say reactive oxygen species are
18	the physiological changes related to obesity and	18	a hallmark of inflammation.
19	whether those specific physiological changes play	19	Q But they're not the same thing.
20	a role in cancer.	20	MS. O'DELL:
21	Q And, just below that, the last sentence	21	Object to the form.
22	in that paragraph, you say, "These mechanisms may	22	A The well, they are
23	be direct, such as radiation directly damaging	23	Again, reactive oxygen species are a
24	DNA, as well as indirect, such as an external	24	component of inflammation. So they're the
	Page 315		Page 317
1	agent causing a cellular cellular reaction or	1	words are two two different definitions, but
2	inflammatory response that then leads to DNA	2	they are a component.
3	damage or mutation."	3	MR. FERGUSON:
4	What cellular reactions are you	4	Q Would you agree that reactive oxygen
5	referring to that result in DNA damage or	5	species are a normal part of cell physiology?
6	mutation?	6	A Yes, absolutely.
7	A So the presence of reactive so a few	7	Q And the major source of reactive oxygen
8	different things. Primarily, along the	8	species comes from inside the cell and is
9	discussions for today, the presence of reactive	9	produced in mitochondria?
10	oxygen species which can directly which are a	10	A A source, and depending on the site of
11	cellular reaction that can then cause directly	11	the physiology. So a normal, healthy cell not
12	cause DNA damage.	12	under stress or injury would be then, yes,
13	There's protein oxidation effects that	13	that's a true statement.
14	are similar to that, in the sense that you have a	14	Under different physiological
15	chemical change and a cellular component that	15	conditions, that statement may not be true.
16	results in a in a protein activity change,	16	Q Can you distinguish reactive oxygen
17	again leading to potential DNA damage.	17	species produced inside a cell from reactive
18	And then you can have	18	oxygen species produced outside the cell?
		1	
19	So those are two two examples of	19	A What do you mean? So by by
	So those are two two examples of cellular reactions to that.	19 20	"distinguish," you mean
19	-	1	"distinguish," you mean
19 20	cellular reactions to that.	20	"distinguish," you mean
19 20 21	cellular reactions to that. Q And and maybe you just explained it,	20 21	"distinguish," you mean Q Can you tell the difference?
19 20 21 22	cellular reactions to that. Q And and maybe you just explained it, but I wanted to make sure I'm clear. What is the	20 21 22	"distinguish," you mean Q Can you tell the difference? A I'm just thinking if there's a way to

Page 318 Page 320 1 exogenously introduced reactive oxygen species 1 would be very difficult. 2 and then compare that to the measurement of 2 MR. FERGUSON: 3 3 endogenously produced reactive oxygen species. Q In your report, on this same page, you 4 4 discuss the fact that, even if someone has a But as far as determining the 5 difference if the cellular integrity is not 5 genetic mutation that predisposes them to cancer 6 6 doesn't mean that he or she is certain to get intact, I'm not aware of a method to do that. 7 7 cancer. Correct? Would you agree that generation of 8 reactive oxygen species is an inevitable 8 That is correct. 9 9 consequence of aging in aerobic organisms? O So there is a -- a random component to 10 MS. O'DELL: 10 the effects of known cancer-causing agents. 11 11 Object to the form. Right? 12 12 MS. O'DELL: So reactive oxygen species are a --13 13 are present at all stages of life. And aging, as Objection to form. 14 a biological phenomenon, is probably one of the 14 There is a complicated relationship 15 15 most variable phenomenon that exists. between genetics, environment, and expose -- or 16 16 environment, including exposure and lifestyle, And specific to reactive oxygen 17 17 species, the diet, lifestyle, and genetics of and the progression of cancer. 18 that individual will drastically change that. 18 Perhaps the -- a summary analogy is the 19 19 more predisposing mutations that an individual And a new area of research that my 20 20 laboratory has been undertaking for a short has, it's -- it's equivalent to their body is 21 21 rolling the dice more often to collect a mutation 22 And, so, I don't have specific 2.2 sufficient to cause cancer than somebody who does 23 publications, and it's really not -- I promise 23 not have the same genetic background. 24 it's not taking us too far afield. 24 And there's -- there's many, many lines Page 319 Page 321 1 -- but is the concept of your annual 1 of evidence. Probably the most prominent is 2 age versus biological age. And my lab has some 2 BRCA1 and 2 mutation and the role it plays in 3 3 increased risk of breast and ovarian cancer. assays that are based on epigenetics as well as 4 some metabolomic markers. And what we found --MR. FERGUSON: 5 5 now, in very, again, preliminary data -- that Wouldn't you agree that even the 6 individuals will vary by plus or minus 15 years 6 inherited susceptibility cannot entirely explain 7 from physiological age to annual age based on, 7 this random component of some people getting 8 8 again, a number of lifestyle factors not cancer when exposed and some people not? 9 important for this study. 9 MS. O'DELL: 10 But the point I'm making is the 10 Objection to form. 11 discussion about level of reactive oxygen species 11 DNA -- so that, it's very 12 and its association with age is actually quite 12 gene-dependent. So BRCA1 and 2 is the example 13 variable based on the long -- or based on the 13 given. That is correct, that if you have a BRCA1 14 current physiological activity of that person. 14 and -- 1 or 2 mutation, you are not guaranteed to 15 Stated very simply, which is probably 15 get cancer. 16 something we all know, the better shape you're 16 Corollary to that is if you do not have 17 17 in, the younger your physiology will appear. And a BRCA1 and 2 mutation, your relative risk for 18 you can actually modulate that quite quickly, 18 canner does not change, meaning that you're at no 19 meaning that a person who's 60 and has made poor 19 less of a risk than somebody -- somebody else who 20 lifestyle choices can actually gain back quite a 20 doesn't have that mutation. 21 bit of that physiological age quite quickly. 21 I should state that there are other 22 And so, again, to directly answer your 22 genes. P53 is a good example that was mentioned 23 question, a annual age-related conclusion 23 earlier. If you carry a mutation in that gene, 24 regarding production of reactive oxygen species 24 the probability that you'll get cancer, assuming

Page 322 Page 324 1 you don't die from something else, is almost 1 And the point of my mentioning this is 2 certain, meaning that it's in the mid to high 90 2 to illustrate that an early predisposition to --3 3 percents if you -- if you live until a late age. or a significant predisposition to cancer that 4 MR. FERGUSON: 4 results in a early cancer event, those 5 Further down this paragraph, you 5 individuals show a lifetime increase in risk of 6 indicate that "An inherited gene mutation could 6 approximately -- they're -- they're approximately 7 7 instead make one more likely to develop cancer six times, depending on the disease, to 13 times 8 when exposed to certain cancer-causing 8 more likely to get that -- to get a secondary 9 9 substances." disease. 10 Correct? That's your statement? 10 So there clearly is a relationship to 11 11 Α predisposition in -- in oncology -- or in rate of 12 Can you provide any examples in which a 12 Q cancer event. 13 13 woman with an inherited mutation in a particular Okay. And I appreciate your response. 14 gene has been demonstrated to have more 14 But remember that my question was related to 15 sensitivity to developing ovarian cancer as a 15 ovarian cancer, and -- and we went a little 16 16 result of exposure to an environmental agent? afield from ovarian cancer. 17 17 Not for ovarian cancer specifically. I And I want to ask you another question 18 would need to review --18 in that regard. Can you provide any example in 19 19 which a woman with an inherited mutation in a There is a -- I've seen report of a 20 single gene related to ovarian cancer, which, 20 particular gene has been demonstrated to have 21 again, I would have to do a bit of searching to 21 more sensitivity to developing ovarian cancer as 22 be sure I'm naming the correct gene, but I --22 a result of exposure to talcum powder? 23 where that has a much high- -- increased risk 23 MS. O'DELL: 24 specific to ovarian cancer, but I do not recall 24 Object to the form. Page 323 Page 325 1 1 if there was a measurement of any exogenous Answer the question. 2 exposure risk that amplified that effect or not. 2 So the mechanism we proposed would be 3 3 But I think the -- as a general independent of -- of that predisposition. But I premise, it is a -- well established in cancer 4 4 would have the opinion that an individual with 5 5 biology that any mu- -- any mutation that results any predisposition mutation, regardless of the 6 in a burden related to DNA repair, related to 6 gene but -- and -- in ovarian cancer, that they 7 cell cycle control, you are more susceptible to 7 would be a more fragile individual as -- when it 8 8 cancer. comes to this exposure under the mechanism that 9 In one of our lines of research where 9 we've been discussing today. 10 we do have some publications, in pediatric 10 MR. FERGUSON: 11 cancer, I would simply point to in approximately 11 Okay. And what I'm looking for is some 12 50 percent of adults who are survivors of 12 example or some literature in that regard. 13 childhood cancer will develop a second cancer 13 I would -- I would have to -- I would 14 event primarily because their -- the fact that 14 have to look --15 they developed a childhood cancer generally means 15 Q Okay. 16 you are predisposed to that condition. 16 Α -- to see. 17 17 And -- and, as evidenced in the So what you've told me is that's your 18 observations we've done in the analysis of 18 opinion, but you don't have any references for it 19 thousands of patients in collaboration with 19 as you sit here? 20 St. Jude and the children's oncology group, we've 20 MS. O'DELL: 21 identified now a ability to do genetic counseling 21 Objection to form. 22 in those individuals and predict with very high 22 So my -- what was -- I was requested to 23 accuracy what their secondary cancer is likely to 23 provide this biologically plausible mechanism, 24 be. 24 and part of that request was not necessarily

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	Page 326		Page 328
1	include the influence on that mechanism that	1	further and you have a sentence that starts
2	specific gene mutations or inherited risks may	2	"epithelial ovarian cancer." Correct?
3	have within relation to ovarian cancer.	3	MS. O'DELL:
4	So I'd certainly be delighted to pause	4	On page 6 there?
5	for a moment and take you know, and and	5	MR. FERGUSON:
6	work on that give you that see if I can	6	Yeah. I apologize. Yeah, it is.
7	give you that specific example.	7	A Yep.
8	MR. FERGUSON:	8	MR. FERGUSON:
9	Q But you can't as you sit here?	9	Q It's on page 6. It's the, I believe,
10	A I cannot.	10	the last sentence of the partial paragraph at the
11	Q Okay. So let's look at further down	11	top of 6. See it?
12	on page 5, you have a section entitled "The Role	12	A I do.
13	of Genetics in Ovarian Cancer." Correct?	13	Q Okay. And you say, "Epithelial ovarian
14	A Correct.	14	cancer (EOC) includes most malignant ovarian
15	Q And I want to look at a reference that	15	neoplasms" you cite Chan, 2006 "that can be
16	you you have cited. And let me mark this as	16	classified based on morphologic and molecular
17	an exhibit, please. I guess I can mark it.	17	genetic features into the following types:
18	(DEPOSITION EXHIBIT NUMBER 21	18	Serous" and, in parentheses, "(OSC) low and
19	WAS MARKED FOR IDENTIFICATION.)	19	high grade); endometrioid (EC), clear cell,
20	MR. FERGUSON:	20	(OCCC), and mucinous (MC) carcinomas."
21	Q Exhibit 21 is the Nunes article. Have	21	Correct?
22	you seen that?	22	A Correct.
23	A I have, yes.	23	Q Okay. And then if we look back at page
24	Q Okay. So if we look at page 5, at top	24	2 of Nunes, in the second sentence of the first
	Q Okay. 50 ii we look at page 5, at top		2 of realist, in the second sentence of the first
	D 227		
	Page 327		Page 329
1	of the page, you indicate that ovarian cancer is	1	Page 329 paragraph under "Ovarian Cancer, an Overview,"
1 2		1 2	
	of the page, you indicate that ovarian cancer is		paragraph under "Ovarian Cancer, an Overview,"
2	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease	2	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there.
2 3	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy	2 3	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct?
2 3 4	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct?	2 3 4	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form.
2 3 4 5	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct.	2 3 4 5	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form.
2 3 4 5 6	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes	2 3 4 5 6	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same
2 3 4 5 6 7	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as	2 3 4 5 6 7	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and
2 3 4 5 6 7 8	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct?	2 3 4 5 6 7 8	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree.
2 3 4 5 6 7 8	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes.	2 3 4 5 6 7 8	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON:
2 3 4 5 6 7 8 9	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes. Q If we look at page 2 of the Nunes	2 3 4 5 6 7 8 9	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON: Q With almost the same wording.
2 3 4 5 6 7 8 9 10	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes. Q If we look at page 2 of the Nunes article, the exact same sentence appears on at	2 3 4 5 6 7 8 9 10	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON: Q With almost the same wording. MS. O'DELL:
2 3 4 5 6 7 8 9 10 11	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes. Q If we look at page 2 of the Nunes article, the exact same sentence appears on at the bottom of page 2 under the heading of	2 3 4 5 6 7 8 9 10 11 12	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON: Q With almost the same wording. MS. O'DELL: Object to the form.
2 3 4 5 6 7 8 9 10 11 12 13	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes. Q If we look at page 2 of the Nunes article, the exact same sentence appears on at the bottom of page 2 under the heading of "Ovarian Cancer, an Overview"; correct?	2 3 4 5 6 7 8 9 10 11 12 13	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON: Q With almost the same wording. MS. O'DELL: Object to the form. A They have similar wording.
2 3 4 5 6 7 8 9 10 11 12 13 14	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes. Q If we look at page 2 of the Nunes article, the exact same sentence appears on at the bottom of page 2 under the heading of "Ovarian Cancer, an Overview"; correct? A Correct.	2 3 4 5 6 7 8 9 10 11 12 13 14	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON: Q With almost the same wording. MS. O'DELL: Object to the form. A They have similar wording. MR. FERGUSON:
2 3 4 5 6 7 8 9 10 11 12 13 14	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes. Q If we look at page 2 of the Nunes article, the exact same sentence appears on at the bottom of page 2 under the heading of "Ovarian Cancer, an Overview"; correct? A Correct. Q Right.	2 3 4 5 6 7 8 9 10 11 12 13 14	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON: Q With almost the same wording. MS. O'DELL: Object to the form. A They have similar wording. MR. FERGUSON: Q Remarkably similar; correct?
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes. Q If we look at page 2 of the Nunes article, the exact same sentence appears on at the bottom of page 2 under the heading of "Ovarian Cancer, an Overview"; correct? A Correct. Q Right. A That's correct. Q Okay. And it's A It's not quite the same sentence, given that it's the same initial statement, not an identical sentence. Q Very close to identical?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON: Q With almost the same wording. MS. O'DELL: Object to the form. A They have similar wording. MR. FERGUSON: Q Remarkably similar; correct? MS. O'DELL: Object to the form. A I wouldn't call it so they Again, we're stating fundamental basic facts around histological type and following a number of, again, factual observations for what
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	of the page, you indicate that ovarian cancer is the major cause of death from gynecologic disease and the second most common gynecologic malignancy worldwide; correct? A Correct. Q And then in your report you cite Nunes and Serpa, the article we've just marked as Exhibit 21, as well as Siegel and Torre; correct? A Yes. Q If we look at page 2 of the Nunes article, the exact same sentence appears on at the bottom of page 2 under the heading of "Ovarian Cancer, an Overview"; correct? A Correct. Q Right. A That's correct. Q Okay. And it's A It's not quite the same sentence, given that it's the same initial statement, not an identical sentence. Q Very close to identical? A Well, they they both they both	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	paragraph under "Ovarian Cancer, an Overview," the nearly identical sentence appears there. Correct? MS. O'DELL: Object to the form. A The two sentences stating the same fundamental facts regarding ovarian cancer and the histological types are yes, I agree. MR. FERGUSON: Q With almost the same wording. MS. O'DELL: Object to the form. A They have similar wording. MR. FERGUSON: Q Remarkably similar; correct? MS. O'DELL: Object to the form. A I wouldn't call it so they Again, we're stating fundamental basic facts around histological type and following a number of, again, factual observations for what the state of the art for genetic knowledge

83 (Pages 326 to 329)

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	Page 330		Page 332
1	cancer with, again, appropriate reference for	1	MS. O'DELL:
2	those for those studies.	2	I'm sorry.
3	MR. FERGUSON:	3	MR. FERGUSON:
4	Q And then if we look at the following	4	Q on page 2.
5	paragraphs, the first full paragraph there on	5	A Yes.
6	page 6, in your report you have a sentence that	6	MR. FERGUSON:
7	starts "low grade OSC cases generally have	7	Sorry. Leigh, it's on page the
8	genetic alterations" in a number of items you've	8	bottom of page 2.
9	listed; correct?	9	MS. O'DELL:
10	A Correct.	10	Oh, I'm there. When you said the top,
11	Q Okay. And that sentence ends with the	11	I got
12	words or "p13/Ras/Notch/FOXM1." Correct?	12	MR. FERGUSON:
13	A Correct.	13	No worries. That's my mistake.
14	Q Okay. And then if we go back to Nunes,	14	Q Okay. It says "EC subtypes," and then
15	if you look at that same paragraph we've been	15	it goes to mucin-coding genes on the top of page
16	talking about and those there's an	16	3. Correct?
17	introductory phrase that you don't have, and then	17	A Correct.
18	it starts with "low grade OSC generally	18	Q Again, that paragraph is nearly
19	comprising." Slightly different wording, but you	19	identical to the one in your report. Correct?
20	list the same types of receptors and the same	20	MS. O'DELL:
21	types of items. Correct?	21	Object to the form.
22	A Yes. That's providing a review of,	22	MR. FERGUSON:
23	again, the known associations between specific	23	Q Same word, same order, same citations;
24	ovarian subtypes and their most commonly referred	24	correct?
	Page 331		Page 333
1	genetic information or genetic predis	1	MS. O'DELL:
2	sorry mutated genes. So I'm that's right.	2	Object to the form.
3	Q Okay.	3	A So my my report is similar to the
4	A They are they are similar in that	4	review article. It it's listing the subtypes
5	both are, again, introducing factual information	5	of ovarian cancer and based on the Nunes
6	about the current knowledge in ovarian cancer in	6	paper, which is a 2018 publication, so a more
7	this literature, again pointing out that	7	current review. I'm, again, providing that
8	referencing the papers that they both came from,	8	referenced information about the the this
9	being the Nunes as well as the appropriate	9	observation.
10	references.	10	Q You're citing the same references as
11	Q Okay. And, then, the paragraph below	11	Nunes; correct?
12	that starts endo "endometrioid carcinoma,"	12	A Yes.
13	paren, "(EC)." Correct?	13	Q You cite the the various gene
14	A Correct.	14	expression of gene in the same order they do,
15	Q If we look	15	so
16	And then that goes all the way to the	16	Correct?
17	word "mucin-coding genes" with two citations;	17	A Yes.
18	correct?	18	Q And is that just coincidental? That's
19	A Correct.	19	just happened? You happened to have put this
	Q If we look at 2 and the top of page 3	20	paragraph in the same order with the same
20		1 01	notations as as Nunes?
	in Nunes, there's a sentence that starts "EC."	21	notations as as Numes?
20	in Nunes, there's a sentence that starts "EC." It does not spell out endometrioid carcinoma. Do	21	MS. O'DELL:
20 21	•	1	

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Shawn Levy, Ph.D.

	Page 334		Page 336
1	that's contained in the Nunes paper. And seeing	1	or p53 mutations can be considered causes of
2	as that this was a review of the literature	2	cancer?
3	with you know, based on the state of the art,	3	MS. O'DELL:
4	the Nunes review is exactly that. And, again,	4	Object to the form.
5	I'm I'm repeating the information regarding	5	A No. Not not specifically causal. I
6	the specific gene information as it relates to	6	think the each of these as we've discussed,
7	this this ovarian cancer risk and and	7	each of these genes, BRCA1 and BRCA2, or starting
8	and, again, appropriately citing the basic	8	with BRCA1 and BRCA2, increase the probability of
9	studies as Nunes did.	9	a of a person generally women getting
10	MR. FERGUSON:	10	breast or ovarian cancer but do not exclusively
11	Q With virtually the same wording?	11	mean somebody with that mutation will get cancer.
12	A With similar wording, yes.	12	So, with that knowledge, I would not
13	Q Let's look at page page 7.	13	consider BRCA1 and BRCA2 mutation alone
14	MS. O'DELL:	14	sufficient to cause cancer. It increased the
15	His report?	15	risk.
16	MR. FERGUSON:	16	And, as we talked about, p53 is a bit
17	Q Yeah. I apologize. Your report.	17	more of a higher-risk gene, and the question as
18	We can set Nunes aside now.	18	to whether or not it is possible for someone to
19	You have a paragraph starts that	19	have a what the rate of someone having a p53
20	starts "individuals can inherit mutations in	20	mutation and not getting cancer, I believe, is
21	BRCA1, BRCA2 or p53."	21	currently unknown. But there, again, is a much
22	See it?	22	higher probability of developing developing
23	A Uh-huh.	23	cancer.
24	Q And you say, "These defects allow	24	MR. FERGUSON:
	Page 335		Page 337
1	additional mutations to accumulate in cells and	1	Q And then the last line there of page 7,
2	lead to a higher probability of cells being	2	you say, "The lifetime risk for ovarian cancer is
3	cancerous."	3	approximately 40 percent for BRCA1 carriers and
4	Correct?	4	15 to 20 percent for BRCA2 carriers."
5	A Correct.	5	Correct?
6	Q And you've indicated earlier in your	6	A Correct. Based on based on the
7	report that cancer is caused by mutations.	7	study that I referenced, yes.
8	Correct?	8	Q Right.
9	A Correct.	9	And and the the if we look at
10	Q And you say here that mutations in	10	the increased risk of 40 percent as compared to
11	BRCA1, BRCA2 or p53 can result in the	11	the risk of cancer in the of ovarian cancer in
12	accumulation of additional mutations in cells.	12	the general population, that's a 25-fold increase
12	accumulation of accumulations in cons.		the general population, that's a 25 ford mercase
13	Correct?	13	for BRCA1 and about a 7- or 8-fold increase for
13	Correct?	13	for BRCA1 and about a 7- or 8-fold increase for
13 14	Correct? MS. O'DELL:	13 14	for BRCA1 and about a 7- or 8-fold increase for BRCA2; correct?
13 14 15	Correct? MS. O'DELL: Object to the form.	13 14 15	for BRCA1 and about a 7- or 8-fold increase for BRCA2; correct? MS. O'DELL:
13 14 15 16	Correct? MS. O'DELL: Object to the form. A Yeah. I made the statement that BRCA1,	13 14 15 16	for BRCA1 and about a 7- or 8-fold increase for BRCA2; correct? MS. O'DELL: Object to the form.
13 14 15 16 17	Correct? MS. O'DELL: Object to the form. A Yeah. I made the statement that BRCA1, BRCA2 and p53, they can be inherited and then, in	13 14 15 16 17	for BRCA1 and about a 7- or 8-fold increase for BRCA2; correct? MS. O'DELL: Object to the form. A I I would have to to determine
13 14 15 16 17 18	Correct? MS. O'DELL: Object to the form. A Yeah. I made the statement that BRCA1, BRCA2 and p53, they can be inherited and then, in turn, positive for those gene mutations.	13 14 15 16 17 18	for BRCA1 and about a 7- or 8-fold increase for BRCA2; correct? MS. O'DELL: Object to the form. A I I would have to to determine that. But I would say so. I'm certainly
13 14 15 16 17 18	Correct? MS. O'DELL: Object to the form. A Yeah. I made the statement that BRCA1, BRCA2 and p53, they can be inherited and then, in turn, positive for those gene mutations. MR. FERGUSON:	13 14 15 16 17 18 19	for BRCA1 and about a 7- or 8-fold increase for BRCA2; correct? MS. O'DELL: Object to the form. A I I would have to to determine that. But I would say so. I'm certainly comfortable stating that the lifetime risk for
13 14 15 16 17 18 19	Correct? MS. O'DELL: Object to the form. A Yeah. I made the statement that BRCA1, BRCA2 and p53, they can be inherited and then, in turn, positive for those gene mutations. MR. FERGUSON: Q Okay. Would you	13 14 15 16 17 18 19 20	for BRCA1 and about a 7- or 8-fold increase for BRCA2; correct? MS. O'DELL: Object to the form. A I I would have to to determine that. But I would say so. I'm certainly comfortable stating that the lifetime risk for ovarian cancer is approximately 40 percent. I'd
13 14 15 16 17 18 19 20 21	Correct? MS. O'DELL: Object to the form. A Yeah. I made the statement that BRCA1, BRCA2 and p53, they can be inherited and then, in turn, positive for those gene mutations. MR. FERGUSON: Q Okay. Would you A So I guess if you could ask the	13 14 15 16 17 18 19 20 21	for BRCA1 and about a 7- or 8-fold increase for BRCA2; correct? MS. O'DELL: Object to the form. A I I would have to to determine that. But I would say so. I'm certainly comfortable stating that the lifetime risk for ovarian cancer is approximately 40 percent. I'd have to verify your your math about that

85 (Pages 334 to 337)

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	Page 338		Page 340
1	general population of ovarian cancer is?	1	So the the Park paper does discuss
2	A It's fairly low. If I thinking of	2	the relationship of ovarian cancer risk relative
3	the cohort studies that were reviewed as part of	3	to benign gynecological conditions.
4	this, it was roughly a hundred to 200 cases per	4	Q And and your comment that you've
5	30- to 40,000 women in those in those studies,	5	cited these studies for is the presence of these
6	so relatively low.	6	mutations increases a person's risk of developing
7	Q And if we go to the top of the next	7	cancer when exposed to a carcinogen. And these
8	page, you say it's page 8 "Therefore, the	8	mutations would be what you've been talking about
9	presence of mutations in the BRCA genes do not	9	in this paragraph, the B the BRCA1, BRCA2, and
10	guarantee that carriers will get cancer. The	10	p53; correct?
11	presence of these mutations increases a person's	11	MS. O'DELL:
12	risk of developing cancer when exposed to a	12	Object to the form.
13	carcinogen."	13	A The sentence is worded, "The presence
14	Correct?	14	of these mutations increases a person's risk of
15	A Correct.	15	developing cancer when exposed to a carcinogen."
16	Q And you cite Park, Vitonis, and Wu for	16	MR. FERGUSON:
17	that. Is that correct?	17	Q Right. Right.
18	A That's correct.	18	And, for example, in Vitonis, isn't it
19	Q Looking at Park, isn't it true that	19	true that BRCA1, BRCA2 and p53 were not even
20	Park does not supply any evidence to support your	20	determined in that study and, instead, Jewish
21	claim that mutations in BRCA1, BRCA2 and/or p53	21	ethnicity was used as a surrogate for a woman's
22	increase a person's risk of developing cancer	22	risk of having a mutation in one of these genes?
23	when exposed to a carcinogen?	23	Do you recall that
24	A I'd have to remind myself of what's in	24	A Again, I would have
	Page 339		Page 341
1	Park.	1	Q one way or the other?
2	Q Are you going through the entirety of	2	MS. O'DELL:
3		_	MS. O DELL.
	the article?	3	Objection.
4	the article? A I'm just reminding myself the content		
4 5		3	Objection.
	A I'm just reminding myself the content	3 4	Objection. A I would have to review the review
5	A I'm just reminding myself the content to see if I could find something that was	3 4 5	Objection. A I would have to review the review the paper. Because part of the review is to
5 6	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the	3 4 5 6	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards
5 6 7	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation.	3 4 5 6 7	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think
5 6 7 8	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of	3 4 5 6 7 8	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in
5 6 7 8 9	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article?	3 4 5 6 7 8 9	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space.
5 6 7 8 9	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article? And and I'm not sure we'll have time	3 4 5 6 7 8 9	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space. MR. FERGUSON:
5 6 7 8 9 10 11	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article? And and I'm not sure we'll have time for you to go through each one of them in this	3 4 5 6 7 8 9 10	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space. MR. FERGUSON: Q All right. But when you cite studies
5 6 7 8 9 10 11	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article? And and I'm not sure we'll have time for you to go through each one of them in this much	3 4 5 6 7 8 9 10 11 12	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space. MR. FERGUSON: Q All right. But when you cite studies for a statement in your report, shouldn't the
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5 6 7 8 9 10 11 12 13 14	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article? And and I'm not sure we'll have time for you to go through each one of them in this much You've got you cited them for these propositions. I'm trying to ask you why you	3 4 5 6 7 8 9 10 11 12 13 14	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space. MR. FERGUSON: Q All right. But when you cite studies for a statement in your report, shouldn't the studies relate to that statement? MS. O'DELL:
5 6 7 8 9 10 11 12 13 14	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article? And and I'm not sure we'll have time for you to go through each one of them in this much You've got you cited them for these propositions. I'm trying to ask you why you cited them for this proposition.	3 4 5 6 7 8 9 10 11 12 13 14 15	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space. MR. FERGUSON: Q All right. But when you cite studies for a statement in your report, shouldn't the studies relate to that statement? MS. O'DELL: Object to the form.
5 6 7 8 9 10 11 12 13 14 15	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article? And and I'm not sure we'll have time for you to go through each one of them in this much You've got you cited them for these propositions. I'm trying to ask you why you cited them for this proposition. A I I'd have to look in more detail.	3 4 5 6 7 8 9 10 11 12 13 14 15	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space. MR. FERGUSON: Q All right. But when you cite studies for a statement in your report, shouldn't the studies relate to that statement? MS. O'DELL: Object to the form. A Well, the studies relate to a person's
5 6 7 8 9 10 11 12 13 14 15 16 17	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article? And and I'm not sure we'll have time for you to go through each one of them in this much You've got you cited them for these propositions. I'm trying to ask you why you cited them for this proposition. A I I'd have to look in more detail. I don't have a specific answer regarding the	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space. MR. FERGUSON: Q All right. But when you cite studies for a statement in your report, shouldn't the studies relate to that statement? MS. O'DELL: Object to the form. A Well, the studies relate to a person's risk of developing cancer. But I I think
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5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A I'm just reminding myself the content to see if I could find something that was specifically related to your question about the presence of a BRCA1 or 2 mutation. Q Okay. Is the BRCA1, BRCA2, p53, any of those even mentioned in the article? And and I'm not sure we'll have time for you to go through each one of them in this much You've got you cited them for these propositions. I'm trying to ask you why you cited them for this proposition. A I I'd have to look in more detail. I don't have a specific answer regarding the regarding BRCA1 Q Okay. A I'm sorry BRCA genes. I would suspect the Park reference was	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Objection. A I would have to review the review the paper. Because part of the review is to be include appropriate references with regards to ovarian cancer risk, and those may I think those publications provide some information in that space. MR. FERGUSON: Q All right. But when you cite studies for a statement in your report, shouldn't the studies relate to that statement? MS. O'DELL: Object to the form. A Well, the studies relate to a person's risk of developing cancer. But I I think it it doesn't change the accuracy of the presence of the mutation relative to that risk. But the I don't have a a good answer as far as relationship of BRCA1 and 2 to the Park paper.

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Shawn Levy, Ph.D.

	Page 342		Page 344
1	And then let's get to Wu.	1	syndrome patients have an increased risk of
2	MS. O'DELL:	2	cancer when exposed to a carcinogen. Correct?
3	Object to the form. You didn't comment	3	A Correct.
4	specifically about Vitonis, if you've got an	4	Q What carcinogens are you referring to?
5	issue with Vitonis. You know, it's not fair to	5	A I'm not not referring to a specific
6	assume that because I don't think you asked a	6	carcinogen. I'm using the term "carcinogen" to
7	direct question.	7	refer to an insult that would result in DNA
8	MR. FERGUSON:	8	damage specifically because, similar to the BRCA
9	Okay. I thought I did, but I could be	9	mutations, Lynch syndrome impairs DNA mismatch
10	mistaken.	10	repair.
11	MS. O'DELL:	11	So that defect alone is not sufficient
12	You mentioned it, but I don't think	12	to result in a cellular transformation, so
13	you I think it was more you rather than asking	13	something else has to occur. And when we
14	a question.	14	consider that carcinogens are the term
15	MR. FERGUSON:	15	"carcinogen" generally refers to something that
16	Q With regard to Wu, do you recall that,	16	has the potential to damage cellular components
17	in Wu, BRCA1, BRCA2, and p53 inherited carrier	17	or DNA, it's putting the
18	mutation status were not even determined in that	18	Inability to repair along with the
19	study? Do you recall that	19	presence of a carcinogen is where that sentence
20	A The	20	comes from.
21	Q one way or the other?	21	Q So and I want to make sure I
22	MS. O'DELL:	22	understand what you're saying. Are you saying
23	Object to the form.	23	that Lynch syndrome patients have an increased
24	A The Wu paper specifically discussed	24	risk of developing cancer after exposure to a
1	nongenetic risk factors.	1	carcinogen, just like everyone else?
2	MR. FERGUSON:	2	A No. I'm stating that Lynch syndrome
3	Q Let's go to the next paragraph, and	3	MS. O'DELL:
4	there you talk about single nucleotide variance,	4	Object to the form. Excuse me.
5	SNVs; correct?	5	A Lynch syndrome is a hereditary
6	A Towards the bottom of the paragraph.	6	condition that increases the overall risk of
7	As in terms of modifiers, yes.	7	cancer to an individual, similar to BRCA1 and 2
8	Q Yeah. Are are single nucleotide	8	mutation.
9	variants mutations?	9	MR. FERGUSON:
10	A Yes.	10	Q So you are you claiming that Lynch
11	Q Do most SNVs result in functionally	11	syndrome patients have a greater increase in
12	defective proteins?	12	relative risk when exposed to a particular
13	A Statistically speaking on a genome-wide	13	carcinogen than do people without Lynch syndrome?
14	basis, no.	14	MS. O'DELL:
15	So a a single nucleotide variant is	15	Object to the form.
16	a variant at any point. And if we consider	16	A No, I'm not making that statement, to a
17	statistically that about 1 percent of the genome	17	specific carcinogen.
18	encodes proteins, again, it's statistically less	18	MR. FERGUSON:
19	likely that any SNV would affect a protein.	19	Q In your next paragraph you talk of
20	Q Okay. Let's look at the next	20	you start with "Myriad Genetics," and you say,
21	paragraph. There you talk about Lynch syndrome;	21	"As with all inherited traits, a positive family
22	correct?	22	history is the strongest indicator of the
	COTTOCK:	1	motor, is the strongest indicator of the
		23	presence of genetic risk alleles in an
23 24	A Correct. Q And you make a statement that Lynch	23 24	presence of genetic risk alleles in an individual."

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Shawn Levy, Ph.D.

	Page 346		Page 348
1	Correct?	1	number higher than that if you're looking at
2	A Correct.	2	indirect or genetic complex formation.
3	Q Isn't it true that many women who have	3	You know, depends how far down the
4	inherited mutations like BRCA1 or BRCA2 and genes	4	cellular control and signal transduction and
5	that predispose to ovarian cancer development do	5	growth and proliferation road that we go as far
6	not have a family history of breast or ovarian	6	as how many genes. But I'm sure, as everyone
7	cancer?	7	well appreciates, everything in biology is
8	A So the your your question is a	8	interrelated in some form.
9	little bit different than the statement. So	9	And, so, it but I would say this
10	the if I could clarify the statement in the	10	statement here is that our ability to look at
11	report, it is more that a positive family history	11	large-scale genetic analysis in individuals of a
12	would be a likely indicator that someone has a	12	variety of cancer types, given the number of
13	genetic risk variant such as BRCA1 and 2.	13	individuals affected by cancer and the analysis
14	Q Isn't it true that family history is	14	of their genetics, we've been able to identify
15	not a sensitive or specific indicator of	15	many of many of the fundamental or most
16	whether of whether a particular woman has	16	perhaps most of the fundamental genes involved in
17	inherited a mutation in a gene associated with	17	that initial disease initiation or progression.
18	increased risk of ovarian cancer?	18	It's important that it is not a
19	MS. O'DELL:	19	comprehensive list. Hence, it is not "all," but
20	Object to the form.	20	there are a large number of genes that are well
21	A I would say that family I would ask	21	established.
22	to define "sensitive" or "specific," because in	22	Q Okay. Let's look at the next page, 10.
23	genetics overall, family history remains a	23	And you have a paragraph that starts
24	valuable and important characteristic in terms of	24	"Macrophages."
	Page 347		Page 349
1	determining the genetic component of of any	1	A Uh-huh.
2	disease, cancer included. And, so, if there's	2	Q And the last sentence says, "Generally
3	something exact regarding its sensitivity or	3	speaking, macrophages can increase inflammation
4	specificity that I can comment on, I will if I	4	or decrease inflammation, depending on the
5	know the answer. But	5	cytokines released."
6	MR. FERGUSON:	6	Correct?
7	Q In in the top of the page of	7	A Correct.
8	page 9, the next page, you indicate, "Because of	8	Q So, with that statement, do you agree
9	the large number of individuals tested and the	9	that inflammation can have both protumorigenic
10	ability to trace their genetic inheritance, the	10	and antitumorigenic effects, depending on
11	genes involved in cancer development are well	11	context, just as you state here for macrophages?
12	established."	12	MS. O'DELL:
13	Is that correct?	13	Object to the form.
14	A Correct. That's what I state. I did	14	A No, I I would not agree with that.
	1 1	15	I I don't know of any evidence of that, that
15	make that statement.	1	-
15 16	make that statement. Q And given that they're well	16	inflammation, as a physiological phenomenon, acts
			-
16	Q And given that they're well	16	inflammation, as a physiological phenomenon, acts
16 17	Q And given that they're well established, can you name all of the inherited	16 17	inflammation, as a physiological phenomenon, acts as an antitumor effect.
16 17 18	Q And given that they're well established, can you name all of the inherited genes that have been identified as being	16 17 18	inflammation, as a physiological phenomenon, acts as an antitumor effect. MR. FERGUSON:
16 17 18 19	Q And given that they're well established, can you name all of the inherited genes that have been identified as being associated with an increased risk of ovarian	16 17 18 19	inflammation, as a physiological phenomenon, acts as an antitumor effect. MR. FERGUSON: Q Going to the next page, the page 11
16 17 18 19 20	Q And given that they're well established, can you name all of the inherited genes that have been identified as being associated with an increased risk of ovarian cancer?	16 17 18 19 20	inflammation, as a physiological phenomenon, acts as an antitumor effect. MR. FERGUSON: Q Going to the next page, the page 11 I'm trying to get through this
16 17 18 19 20 21	Q And given that they're well established, can you name all of the inherited genes that have been identified as being associated with an increased risk of ovarian cancer? A No, not I can't name them all off	16 17 18 19 20 21	inflammation, as a physiological phenomenon, acts as an antitumor effect. MR. FERGUSON: Q Going to the next page, the page 11 I'm trying to get through this hopefully within the next 15 minutes.
16 17 18 19 20 21 22	Q And given that they're well established, can you name all of the inherited genes that have been identified as being associated with an increased risk of ovarian cancer? A No, not I can't name them all off the top of my head, no. There's something in the	16 17 18 19 20 21 22	inflammation, as a physiological phenomenon, acts as an antitumor effect. MR. FERGUSON: Q Going to the next page, the page 11 I'm trying to get through this hopefully within the next 15 minutes. under the role of inflammation in

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Case 3:16-md-02738-MAS-RLS Document 9733-20 Filed 05/07/19 Page 90 of 100 PageID: 35919 Shawn Levy, Ph.D.

	Page 350		Page 352
1	A I am.	1	anything on that, so that's that's fine.
2	Q And you're obviously talking about the	2	Let's move on.
3	role of inflammation there. Isn't it true that	3	A Okay.
4	no published animal model has ever shown that	4	Q I think you've stated earlier that your
5	inducing inflammation induces the development of	5	opinion in this case is based on the totality of
6	ovarian cancer?	6	what is included in the product, the talcum
7	MS. O'DELL:	7	powder products. Is that correct?
8	Object to the form.	8	A Correct.
9	A We've been earlier today we were	9	Q So you're you cannot distinguish
10	discussing some animal models as it relates to	10	the the carcinogenicity of the constituent
11	MR. FERGUSON:	11	parts of the talcum powder products, correct,
12	Q Yeah. You and Miss Brown talked about	12	including the fragrance?
13	a number of animal models.	13	MS. O'DELL:
14	A Yeah.	14	Object to the form.
15	Q And and what I'm trying to ask you,	15	A I I was I was not asked to to
16	is there any of those animal models or any others	16	provide that delineation. And, so, instead,
17	that have ever shown that inducing inflammation	17	subsequent to seeing some of the other expert
18	induces the development of ovarian cancer?	18	reports, we began with talcum powder as a product
19	A I didn't I didn't look specifically	19	and then have since learned more about the
20	for an animal study of that type in the process	20	constituent components, including asbestos,
21	of developing the report.	21	fragrance, potential for heavy metals, which I
22	Q Later down that page, you talk about	22	understand or I've observed that there's a
23	two models. "The literature reviews as well as	23	variety of testing documents that that show a
24	many direct studies feature the immune system as	24	variety of results.
	Page 351		Page 353
1	being an important mediator of ovarian	1	So, to answer your question, I did not
2	carcinogenesis via two models, chronic	2	specifically evaluate the individual specific
3	inflammation and incessant ovulation."	3	components in any in any individual product as
4	Correct?	4	it relates. Instead, remained focused on the
5	A Correct.	5	mechanism for the complete complete product.
6	Q Is it your opinion that incessant	6	MR. FERGUSON:
7	ovulation is a form of chronic inflammation?	7	Q And you've made reference to heavy
8	A It is not.	8	metals throughout your testimony on occasion. Do
9	Q Isn't it true that there's no	9	you recall that?
10	pathological evidence in humans that perineal	10	A I do.
11	talc users have ovarian inflammation?	11	Q Do you have any opinions that any of
12	MS. O'DELL:	12	these heavy metals contribute to the inflammation
13	Object to the form.	13	process that you've been talking about?
14	A I'm thinking.	14	A The to the inflammation
15	I would have to review the	15	I'm not aware of any direct evidence
16	I'm sorry. That's it's	16	for heavy metal contribution to the inflammation
17	MR. FERGUSON:	17	process that we've been discussing. Instead, the
18	Q Okay.	18	heavy metals, particularly chromium, caught my
19	A I would again, I would have to look	19	attention because of its well-established ability
20	more carefully for that. I can't I can't name	20	to directly damage DNA and, therefore, you know,
21	a study of that type right now.	21 22	potentially play a role in carcinogenesis.
22 23	Q So I think you've said previously	23	Q Do you have any knowledge or opinion about how much chromium you claim is in the in
23	Are you done looking? I understood you couldn't give me	24	the body powder products?
~ '	i understood you couldn't give me	-	and dody powder products:

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Shawn Levy, Ph.D.

1 2 3 4	MS. O'DELL: Object to the form.	1	talc with asbestiform bodies, I think would be
3	Object to the form.	١ ۾	
		2	very reasonable to state that it has mutagenic
4	A I wasn't asked to evaluate the amount	3	properties.
	of chromium or whether it was sufficient for	4	MR. FERGUSON:
5	damage. It was more reviewing. I would have to	5	Q And can you cite me any literature for
6	defer to other experts who have done the testing	6	that?
7	on the products.	7	A I would simply refer to the much of
8	MR. FERGUSON:	8	the body of asbestos literature for the for
9	Q So you have no opinion on that?	9	that.
10	MS. O'DELL:	10	MR. FERGUSON:
11	Object to the form.	11	I think that's all I have. I'll turn
12	A I'm sorry. An opinion on the amount of	12	it over to someone else to ask some questions.
13	chromium?	13	MS. BROWN:
14	MR. FERGUSON:	14	Anybody with some more?
15	Q Correct.	15	MS. O'DELL:
16	A Again, I wasn't asked to generate such	16	I'm going to take a break for a few
17	an opinion.	17	minutes.
18	Q I think I think I'm almost done.	18	VIDEOGRAPHER:
19	Isn't it true that published data have	19	Going off the record. The time is
20	demonstrated that talc is not genotoxic and does	20	4:54 p.m.
21	not cause mutations?	21	(OFF THE RECORD.)
22	MS. O'DELL:	22	VIDEOGRAPHER:
23	Object to the form.	23	We're back on the record. The time is
24	A I'm not aware of a study that	24	5:20 p.m.
	Page 355		Page 357
1	specifically looked at the genotoxicity of of	1	EXAMINATION
2	talc. And I think it would certainly warrant	2	BY MS. O'DELL:
3	defining which type of talc and components	3	Q Dr. Levy, I have just a few follow-up
4	therein. But I'm I'm not aware of a study	4	questions for you.
5	that has concluded that there are no genotoxic	5	I'm gonna ask you to turn to page 14 of
6	effects of any type of talc.	6	your report.
7	MR. FERGUSON:	7	And earlier today
8	Q Would you agree there's no evidence	8	I'm going to ask, Doctor, if you could
9	that talc causes sister chromatid exchange or	9	put the exhibits in front of you, and we'll pull
10	unscheduled DNA synthesis?	10	those out.
11	MS. O'DELL:	11	But earlier today you were asked about
12	Object to the form.	12	a letter from the FDA that was marked as Exhibit
13	A I didn't I didn't review the	13	Number 16, and if you could pull that out of your
14	literature for those two specific phenomenon. I	14	stack there. And, specifically, if you'll turn
15	would have to, again, specifically look or review	15	to page 4 of the letter.
16	for that.	16	And you'll recall that this letter was
17	MR. FERGUSON:	17	written in 2014. Do you remember that?
18	Q So, as you sit here, you have no	18	A Yes.
19	opinion as to whether tale is or is not	19	Q And if you look, however, at page 4 of
20	mutagenic?	20	the letter, it appears that the FDA's review of
21	MS. O'DELL:	21	the relevant toxicity literature stopped at the
	Object to the form.	22	year 2008. Fair?
22	2		•
	A No. We've so talc in general, particularly in its in its form of fibrous	23 24	MS. BROWN: Objection to the form.

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Shawn Levy, Ph.D.

1	Page 358		Page 360
	MS. O'DELL:	1	Objection to the form of the question.
2	Q Did the FDA's review of the toxicity	2	A Yes, we we had a discussion
3	literature stop in 2008?	3	regarding the results shown in Figure 3, the
4	A Yes.	4	level of exposure of talc as well as its
5	Q And if you look at page 14 of of	5	duration. Sorry. The talc dose as well as
6	your report, your review of the literature	6	duration.
7	included multiple references that were published	7	MS. O'DELL:
8	after 2008?	8	Q And in the if you'll look at
9	MS. BROWN:	9	Figure 1, Doctor, explain to us, please, what
10	Form.	10	Figure 1 describes in terms of the viability of
11	A That's correct.	11	the cells at the 72-hour mark.
12	MS. O'DELL:	12	A So the so Figure 1 is a graph
13	Q And, in fact, you cited Shukla that was	13	describing percent cell viability versus the
14	published in	14	different normal or variant cells at a 24-hour
15	Was Shukla published in 2009?	15	and 72-hour time point, two different ovarian
16	A Yes. The reference is in the report to	16	cancer cell lines, as well as doses of talc from
17	2009.	17	zero micrograms per milliliter up to 500
18	Q Yes.	18	micrograms per milliliter, and each of those is
19	And, in addition to that, did you cite	19	applied.
20	other references in support of your opinion that	20	And at the 72-hour time point in both
21	talc powder causes inflammation that were dated	21	cell lines, OSE2a and GCA1 GC1a shows a
22	and published after 2008?	22	decrease in cellular viability that is
23	A I did.	23	dose-dependent in each of the four cell lines.
24	Q And, so, the suggestion by counsel for	24	Q Okay. And
	250		D 261
	Page 359		Page 361
1	Johnson & Johnson that somehow the FDA had	1	A Sorry. Each of the two cell lines.
2	reviewed the literature for toxicity up until the	2	Q And is it fair to say that the reason
3	date of this letter would have been incorrect?	3	you don't see dose response, you know, at the
	MS. BROWN:	4	
4			at the greatest magnitude is because the cells
5	Objection to the form of the question.	5	essentially die?
5 6	Objection to the form of the question. A	5 6	essentially die? MS. BROWN:
5 6 7	Objection to the form of the question. A As as we discussed, the the letter from the FDA dated April 1st, 2014, states	5 6 7	essentially die? MS. BROWN: Objection to the form.
5 6 7 8	Objection to the form of the question. A As as we discussed, the the letter from the FDA dated April 1st, 2014, states to include literature from 1980 to 2008.	5 6 7 8	essentially die? MS. BROWN: Objection to the form. A Well, I would say if we consider the
5 6 7 8 9	Objection to the form of the question. A As as we discussed, the the letter from the FDA dated April 1st, 2014, states to include literature from 1980 to 2008. MS. O'DELL:	5 6 7 8 9	essentially die? MS. BROWN: Objection to the form. A Well, I would say if we consider the results displayed in Figure 1 in relation to the
5 6 7 8 9	Objection to the form of the question. A As as we discussed, the the letter from the FDA dated April 1st, 2014, states to include literature from 1980 to 2008. MS. O'DELL: Q Let me ask you	5 6 7 8 9	essentially die? MS. BROWN: Objection to the form. A Well, I would say if we consider the results displayed in Figure 1 in relation to the results displayed in Figure 3, an ex an
5 6 7 8 9 10 11	Objection to the form of the question. A As as we discussed, the the letter from the FDA dated April 1st, 2014, states to include literature from 1980 to 2008. MS. O'DELL: Q Let me ask you You can put that aside, Dr. Levy.	5 6 7 8 9 10 11	essentially die? MS. BROWN: Objection to the form. A Well, I would say if we consider the results displayed in Figure 1 in relation to the results displayed in Figure 3, an ex an explanation for the concentrating on the 500
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Shawn Levy, Ph.D.

	Page 362		Page 364
1	Q And what was the purpose for which you	1	principle been published in the peer-reviewed
2	cited the Hamilton paper?	2	literature?
3	A That it was one of the available animal	3	A It has.
4	studies looking at the effects of talc on a rat	4	Q And, in regard to ovarian cancer, prior
5	ovary.	5	to becoming involved in the litigation, did you
6	Q And did the paper show that there was a	6	hold the opinion that inflammation was a part of
7	increase in inflammation as result of talc?	7	the development of ovarian cancer?
8	A Yes, in the form of foreign body	8	A Yes.
9	granulomas observed in five of the injected	9	Q And has that been researched and that
10	ovaries.	10	research published in the peer-reviewed
11	Q And you're looking at, I guess, that	11	literature?
12	last sentence on page 103 and carrying over to	12	A It has.
13	the to the narrative on page 105?	13	Q In the same way, has the fact that
14	A Cellular foreign body?	14	talc, talcum powder, induces inflammation been
15	Q Yes.	15	published in the peer-reviewed literature?
16	A Foreign body granulomas without any	16	MS. BROWN:
17	surrounding inflammation were seen in five of the	17	Objection to the form.
18	injected ovaries. And similar lesions were not	18	A Yes.
19	uncommonly noted in the supracapsular fat in the	19	MS. O'DELL:
20	connective tissue matrix of the capsule.	20	Q And you were asked whether there was
21	Q And if you'll look down in the	21	evidence that talc caused inflammation in humans.
22	discussion section, Dr. Levy, the first paragraph	22	Do you recall that question?
23	there in your where beginning	23	A I do.
24	"Unfortunately," does it appear that talc also	24	Q And based on your exhaustive review of
	Page 363		Page 365
1	Page 363 induced fibrosis	1	Page 365 the literature, what evidence would you point to
1 2		1 2	
	induced fibrosis		the literature, what evidence would you point to
2	induced fibrosis MS. BROWN:	2	the literature, what evidence would you point to undergirding your opinion that talc causes
2	induced fibrosis MS. BROWN: Objection to form.	2 3	the literature, what evidence would you point to undergirding your opinion that talc causes inflammation in humans?
2 3 4	induced fibrosis MS. BROWN: Objection to form. MS. O'DELL:	2 3 4	the literature, what evidence would you point to undergirding your opinion that talc causes inflammation in humans? A I think considering the molecular
2 3 4 5	induced fibrosis MS. BROWN: Objection to form. MS. O'DELL: Q in the rats?	2 3 4 5	the literature, what evidence would you point to undergirding your opinion that talc causes inflammation in humans? A I think considering the molecular mechanism we were discussing of the recent paper
2 3 4 5 6	induced fibrosis MS. BROWN: Objection to form. MS. O'DELL: Q in the rats? A The manuscript makes the statement that, "Unfortunately, bursal distention occurred as an unforeseen complication" and further states	2 3 4 5 6	the literature, what evidence would you point to undergirding your opinion that tale causes inflammation in humans? A I think considering the molecular mechanism we were discussing of the recent paper by Saed, et al., again, that we discussed earlier
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Shawn Levy, Ph.D.

	Page 366		Page 368
1	the information available to the role that talcum	1	Q Is this the Park paper that you
2	powder plays in inflammation in ovarian cancer.	2	referenced
3	And, so, that methodology involved,	3	MS. BROWN:
4	first, a review of the literature and then a	4	Counsel, do you have a copy for us?
5	development of a report and then a synthesis of a	5	MS. O'DELL:
6	biologically plausible mechanism where the basis	6	I don't. I'm assuming I don't think
7	of that plausibility was to ask if each of the	7	Ken marked it, but I'm assuming he has a copy.
8	different component steps that are described in	8	Q Is that the Park paper that you
9	that mechanism was supported by peer-reviewed	9	referenced in your report, Dr. Levy?
10	research. First, does talc cause inflammation?	10	A It is.
11	Second, does inflammation cause cancer? And	11	Q And if you'll turn to page 8 of the
12	then, third or does inflammation cause ovarian	12	paper, about midway down the first column, maybe
13	cancer? And then, third, is there is that	13	a little bit less, see the paragraph starting "We
14	supportive of a overall mechanism of cancer	14	did find an association"? Page 8.
15	progression and metastasis?	15	A I'm looking for the page number.
16	Q Can that methodology be replicated?	16	Q Sorry. Let me give you a page number.
17	A Certainly. I think, you know, anyone	17	I'm not sure it has a page number.
18	with a similar similar background and	18	A No, it doesn't.
19	experience who who undertook the same	19	Q Do you see the paragraph beginning "We
20	activities would likely certainly likely come	20	did find associations between overall cancer and
21	up with the same same conclusions.	21	history of fibroid or ovarian cysts"? Do you see
22	Q Did you rely on the IARC monograph in	22	that paragraph?
23	relation to nickel, chromium, and cobalt in	23	A Well, actually yes, I see that
24	reaching your opinions in this case?	24	paragraph.
21	reaching your opinions in this case:	21	paragraph.
	Page 367		Page 369
1	Page 367 MS. BROWN:	1	Page 369 Q If you'll look further, the sentence
1 2		1 2	
	MS. BROWN:		Q If you'll look further, the sentence
2	MS. BROWN: Objection to the form.	2	Q If you'll look further, the sentence beginning "This observation may suggest," do you
2	MS. BROWN: Objection to the form. A I so the the number of IARC	2 3	Q If you'll look further, the sentence beginning "This observation may suggest," do you see that?
2 3 4	MS. BROWN: Objection to the form. A I so the the number of IARC publications were certainly in the material that	2 3 4	Q If you'll look further, the sentence beginning "This observation may suggest," do you see that? A Yes. Uh-huh.
2 3 4 5	MS. BROWN: Objection to the form. A I so the the number of IARC publications were certainly in the material that was reviewed for for my for my report.	2 3 4 5	Q If you'll look further, the sentence beginning "This observation may suggest," do you see that? A Yes. Uh-huh. Q And the paper says, "This observation may suggest a possible additive or synergistic effect on tumor tumorigenesis influenced by
2 3 4 5 6	MS. BROWN: Objection to the form. A I so the the number of IARC publications were certainly in the material that was reviewed for for my for my report. MS. O'DELL:	2 3 4 5 6	Q If you'll look further, the sentence beginning "This observation may suggest," do you see that? A Yes. Uh-huh. Q And the paper says, "This observation may suggest a possible additive or synergistic
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	MS. BROWN: Objection to the form. A I so the the number of IARC publications were certainly in the material that was reviewed for for my for my report. MS. O'DELL: Q Based on your review of the literature, is it your opinion that nickel causes inflammation? A Yes. The IARC the the characterization of those compounds, nickel as well as chromium, among others, are would have an inflammatory response. Q You were asked questions earlier today actually, not so much earlier a few minutes ago regarding the Park paper. And you cited the Park paper on page I think it was 8 of your report. A Yes. Q And let me show you what I'm marking as Exhibit 22 to your deposition.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q If you'll look further, the sentence beginning "This observation may suggest," do you see that? A Yes. Uh-huh. Q And the paper says, "This observation may suggest a possible additive or synergistic effect on tumor tumorigenesis influenced by the proinflammatory milieu from an increased burden in the number of benign conditions. Increased risk of serous cancer, ovarian cancer, women with other proinflammatory risk factors has been reported reported, most notably in talc users." Do you see that? A I do. Q Is that the section you were thinking of when you cited it in your report? MS. BROWN: Objection to the form. A Yes, it is. MS. O'DELL:
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	MS. BROWN: Objection to the form. A I so the the number of IARC publications were certainly in the material that was reviewed for for my for my report. MS. O'DELL: Q Based on your review of the literature, is it your opinion that nickel causes inflammation? A Yes. The IARC the the characterization of those compounds, nickel as well as chromium, among others, are would have an inflammatory response. Q You were asked questions earlier today actually, not so much earlier a few minutes ago regarding the Park paper. And you cited the Park paper on page I think it was 8 of your report. A Yes. Q And let me show you what I'm marking as Exhibit 22 to your deposition. (DEPOSITION EXHIBIT NUMBER 22	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q If you'll look further, the sentence beginning "This observation may suggest," do you see that? A Yes. Uh-huh. Q And the paper says, "This observation may suggest a possible additive or synergistic effect on tumor tumorigenesis influenced by the proinflammatory milieu from an increased burden in the number of benign conditions. Increased risk of serous cancer, ovarian cancer, women with other proinflammatory risk factors has been reported reported, most notably in talc users." Do you see that? A I do. Q Is that the section you were thinking of when you cited it in your report? MS. BROWN: Objection to the form. A Yes, it is. MS. O'DELL: Q Let me ask you to a couple of other

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Shawn Levy, Ph.D.

	Page 370		Page 372
1	In regard to opinions in relation to	1	Q And did you have the opportunity to
2	the pathology of ovarian tissue, would you defer	2	consider his report prior to finalizing your
3	to a gynecologist or gynecologic oncologist or a	3	report?
4	pathologist regarding that matter?	4	A I did.
5	A Yes, of course.	5	Q I have nothing further. Thank you.
6	Q You testified earlier today that you	6	EXAMINATION
7	relied on the Longo testing in in reaching	7	BY MS. BROWN:
8	your opinions in this case.	8	Q Dr. Levy, would you take Exhibit 16
9	MS. BROWN:	9	out, please, the FDA's response to the citizens
10	Objection to the form.	10	petition?
11	MS. O'DELL:	11	A I have it.
12	Q Did you rely on Dr. Longo's testing	12	Q Counsel asked you some questions that
13	in in reaching your opinions in this case?	13	involved questions that I asked you. Remember
14	A Yes. They were they were one of	14	she asked you the lawyer for J & J didn't point
15	the among many of the manuscripts we've been	15	out the articles that were reviewed from 1980 to
16	discussing.	16	2008 on page 4? Do you recall those questions
17	Q Yeah.	17	from plaintiffs' counsel?
18	In fact, you cite Dr. Longo's report on	18	A Yes.
19	page 15 of your report. Is that right?	19	Q Would you look at the last page of the
20	MS. BROWN:	20	letter, page 6 of 7? I'd like to direct your
21	Objection to the form.	21	attention to the second sentence on this page
22	A Yes.	22	that begins "In consideration of your request."
23	MS. O'DELL:	23	Do you see that?
24	Q And and in terms of Dr. Longo's	24	A I do.
	Page 371		Page 373
1		1	Q And it states, "In consideration of
1	report, his findings of 37 of 56 historical talc samples being positive for asbestos and 41 of the	2	your request, we conducted an expanded literature
2	42 samples tested containing fibrous talc,	3	search dating from the filing of the petition in
3 4	was was that information you had prior to	4	2008 through January 2014. The results of this
5	reaching your opinions and finalizing your	5	search failed to identify any new compelling
6		6	literature data or new scientific data."
7	report? MS. BROWN:	7	
_	Objection to the form.	l _	Do you see that?
8 9	A Yes.	8 9	A I see that. Q And putting together, then, the
10	MS. O'DELL:	10	Q And putting together, then, the information from page 4 and page 6, you see that
TU	MS. O DELL.	1 10	
	O And in relation to Dr. Crosslavia report	11	
11	Q And in relation to Dr. Crowley's report	11	the FDA considered literature from 1980 to 2014.
11 12	regarding the fragrance chemicals, do you defer	12	the FDA considered literature from 1980 to 2014. Is that correct?
11 12 13	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the	12 13	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL:
11 12 13 14	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals?	12 13 14	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form.
11 12 13 14 15	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals? A Yes.	12 13 14 15	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form. A Yes, that is correct.
11 12 13 14 15	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals? A Yes. Q And did you rely on the opinions he	12 13 14 15 16	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form. A Yes, that is correct. MS. BROWN:
11 12 13 14 15 16	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals? A Yes. Q And did you rely on the opinions he reached in relation to the fragrance chemicals in	12 13 14 15 16 17	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form. A Yes, that is correct. MS. BROWN: Q And what the FDA concluded, contrary to
11 12 13 14 15 16 17	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals? A Yes. Q And did you rely on the opinions he reached in relation to the fragrance chemicals in reaching your opinions in this case?	12 13 14 15 16 17 18	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form. A Yes, that is correct. MS. BROWN: Q And what the FDA concluded, contrary to your opinion here, Doctor, is that a cogent
11 12 13 14 15 16 17 18	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals? A Yes. Q And did you rely on the opinions he reached in relation to the fragrance chemicals in reaching your opinions in this case? A Yes. My my review of that just, in	12 13 14 15 16 17 18 19	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form. A Yes, that is correct. MS. BROWN: Q And what the FDA concluded, contrary to your opinion here, Doctor, is that a cogent biological mechanism by which talc might lead to
11 12 13 14 15 16 17 18 19 20	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals? A Yes. Q And did you rely on the opinions he reached in relation to the fragrance chemicals in reaching your opinions in this case? A Yes. My my review of that just, in addition to deferring it, was just made the	12 13 14 15 16 17 18 19 20	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form. A Yes, that is correct. MS. BROWN: Q And what the FDA concluded, contrary to your opinion here, Doctor, is that a cogent biological mechanism by which talc might lead to ovarian cancer is lacking; correct?
11 12 13 14 15 16 17 18 19 20 21	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals? A Yes. Q And did you rely on the opinions he reached in relation to the fragrance chemicals in reaching your opinions in this case? A Yes. My my review of that just, in addition to deferring it, was just made the general or made the statement that I was in	12 13 14 15 16 17 18 19 20 21	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form. A Yes, that is correct. MS. BROWN: Q And what the FDA concluded, contrary to your opinion here, Doctor, is that a cogent biological mechanism by which tale might lead to ovarian cancer is lacking; correct? MS. O'DELL:
11 12 13 14 15 16 17 18 19 20 21 22	regarding the fragrance chemicals, do you defer to Dr. Crowley regarding his analysis of the fragrance chemicals? A Yes. Q And did you rely on the opinions he reached in relation to the fragrance chemicals in reaching your opinions in this case? A Yes. My my review of that just, in addition to deferring it, was just made the general or made the statement that I was in general agreement with his opinions in those	12 13 14 15 16 17 18 19 20 21 22	the FDA considered literature from 1980 to 2014. Is that correct? MS. O'DELL: Object to the form. A Yes, that is correct. MS. BROWN: Q And what the FDA concluded, contrary to your opinion here, Doctor, is that a cogent biological mechanism by which talc might lead to ovarian cancer is lacking; correct? MS. O'DELL: Object to the form.
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1 Q Directing your attention to page 4, number 4, the conclusion regarding a cogent should be conclusion regarding a cogent should be concluded as the conclusion regarding a cogent should be concluded as the conclusion regarding a cogent should be concluded as the conclusion regarding a cogent should be concluded as the conclusion of the biological mechanism lacking. Do you see that? 4 MS. OTBELL: 5 Object to the form. 6 A Yes. I see where they – they made the statement that cogent biological mechanism by which take might lead to ovarian cancer is lacking and that exposure to tale does not account for all cases of ovarian cancer. 10 account for all cases of ovarian cancer. 11 MS. BROWN: 12 Q Next, Doctor, do you rely on the findings of the Hamilton article in forming your opinions in this case? 13 A Similar to as we've discussed, in a flap portion, yes. 14 portion, yes. 15 A Similar to as we've discussed, in a flap portion, yes. 16 portion, yes. 17 Q You, Dr. Levy, cannot point us to a single paper showing an inflammatory response leading to ovarian cancer in humans from tale use. True? 18 single paper showing an inflammatory response leading to ovarian cancer in humans. That's 19 posteroided tale exposure that then was — subsequently led to cancer in humans. That's 10 correct. 2 Q Controlled aside, you're not aware of any one of the biological plausibly — plausible mechanism in inflammatory response leading to cancer in the humans; correct? 10 MS. O'DELL: 10 Doctor? 11 MS. BROWN: 12 Doctor? 12 MS. DO'DELL: 22 MS. O'DELL: 3 MS. O'DELL: 4 NS. O'DELL: 4 NS. O'DELL: 5 Object to the form. 9 A I would — my review and development of the biological plausibly — plausible mechanism in the metal to the conclusions of the minimal tory account of the proper that the form of the proper that the proper that the form of the proper that the proper that the proper		Page 374		Page 376
2 mumber 4, the conclusion regarding a cogent biological mechanism lacking. Do you see that? 3 biological mechanism lacking. Do you see that? 4 MS. O'DELL: 5 Object to the form. 6 A Yes. I see where they — they made the 5 statement that cogent biological mechanism by 8 which take might lead to ovarian cancer is 10 lacking and that exposure to take does not account for all cases of ovarian cancer. 10 account for all cases of ovarian cancer. 11 MS. BROWN: 12 Q Next, Doctor, do you rely on the 11 findings of the Hamilton article in forming your 14 opinions in this case? 15 A Similar to as we've discussed, in a 16 portion, yes. 16 portion, yes. 17 Q You, Dr. Levy, cannot point us to a 18 single paper showing an inflammatory response leading to ovarian cancer in humans from take use. True? 18 single paper showing an inflammatory response 19 leading to ovarian cancer in humans from take use. True? 19 A There is — I do not know of a single 22 paper that — in a controlled fashion in humans 23 provided take exposure that them was — subsequently led to cancer in humans. That's 10 correct. 2 Q Controlled aside, you're not aware of any observational case report, any kind of study that shows talcum powder tuse causing an inflammatory response leading to cancer in humans. That's 11 Doctor? 12 MS. O'DELL: 13 O'Dject to the form. 14 A I'm aware of a number of studies that showed an accell in the report. I'm not aware of a number of studies that does or number of studies that showed an accell in the report. I'm not aware of a number of studies that does or number of studies that showed an accell in the parts of the body. Are you familiar with those? 12 A Yes. 13 Q And you're not aware of any one of them of the biological plansible mechanism of the studies required to the report. I'm not aware of a number of studies that does or number of studies that does or numb	1		1	
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Shawn Levy, Ph.D.

2 3 4	MS. BROWN: Q Well, we got one. We got the Heller	1	MS. O'DELL:
2 3 4		1	
3 4	Well, we got one. We got the Heller	2	Actually, that wasn't your question.
4	study that purported to find tale in ovarian	3	But you've clarified it, so
	tissue; right?	4	A The so you're excluding are you
	MS. O'DELL:	5	excluding cell lines?
6	Object to the form. Different	6	MS. BROWN:
7	MS. BROWN:	7	Q Yeah. Human beings. Do you know of
8	Counsel, it's form, please.	8	any study like Heller in human beings that
9	MS. O'DELL:	9	purports to find talc in human women ovarian
10	Object to the form.	10	tissue that shows an inflammatory response?
11	A Yeah. What was the the Heller	11	MS. O'DELL:
12	study, here it is.	12	Objection to form.
13	Yes, I recall our discussion of this	13	A I'm not aware of a study showing that
14	paper.	14	specifically.
	MS. BROWN:	15	MS. BROWN:
16	Q Right.	16	Q Counsel asked you some questions about
17	And this study reported that there was	17	nickel causing inflammation that leads to ovarian
18	no inflammatory response around the talc that	18	cancer. Do you recall those?
19	they claimed to have found in the ovarian tissue.	19	MS. O'DELL:
20	True?	20	Object to the form.
21	A They make those statements in the	21	A No. I was asked if if heavy
22	paper, but the the I would have some	22	metal or components like nickel have been
23	concern with the histological methods, but I	23	shown to have a potential inflammatory response.
24	would certainly defer to a pathologist in the	24	MS. BROWN:
	Page 379		Page 381
	sense of being able to determine the both	1	Q Uh-huh. Because you're not aware of
	presence of talc and the inflammatory response in	2	any published scientific literature that shows
	that.	3	heavy metals cause inflamma inflammation that
	Q So you have some critiques of the	4	leads to ovarian cancer; right?
	Heller study. Is that fair?	5	A I wasn't asked to to review for
	MS. O'DELL:	6	that. I would state that there's a number of
7	Object to the form.	7	studies that show the role of metals
	A I would say I would need a I would	8	particularly chromium and its and its
	need a a I would need a further evaluation	9	damaging effect on DNA, which I think by would
	of the methodology for detecting both talc as	10	certainly have both an inflammatory as well as
	well as inflammation in the same materials using	11	carcinogenic effect.
	the methods of the Heller paper.	12	Q And we're here on an issue of ovarian
	MS. BROWN:	13	cancer. And, as it relates to ovarian cancer,
	Q Are you aware of any other paper that	14	you're not aware of any scientific support for
	you think is methodologically superior that shows	15	the proposition that heavy metals can lead to
	the presence of talc in ovarian tissue exhibiting	16	inflammation that causes ovarian cancer. Fair
	an inflammatory response?	17	enough?
	MS. O'DELL:	18	A Well, I was certainly, I was asked
19	Object to the form.	19	to review the literature to develop a and
	A Well, we've discussed the rat studies.	20	develop conclusions of that literature as it
	MS. BROWN:	21	related to a a potential or possible
22	Q Human tissue. That's my question.	22	biological mechanism.
	A Human	23	In doing that, in part of that review,
23	Q Human tissue.	24	we certainly made the observation that talc and

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	Page 382		Page 384
1	its components, as we discussed earlier, may	1	mineralogy of talc.
2	have there's the possibility of having	2	Q And whether what Dr. Longo is finding
3	additional component effects, such as heavy	3	in the samples that he tested is the asbestiform
4	metals and their effects, asbestiforms and their	4	or nonasbestiform variety of the minerals, you
5	effects and the like; therefore, really	5	would defer to others? Is that fair?
6	considering the complete components of the	6	A I'd certainly defer to Dr. Longo.
7	product overall.	7	Q And have you looked at any other
8	Q And, as it relates to the testimony you	8	testing of the samples that Dr. Longo has tested?
9	just gave, you're talking about just a	9	MS. O'DELL:
10	theoretical possibility; right?	10	Object to the form. Vague.
11	MS. O'DELL:	11	A Within the literature, there's there
12	Objection to form.	12	was a number of tables describing testing,
13	A Sure. And, then, from that review	13	described tests from previous testimony.
14	developing a a conclusion of a biologically	14	MS. BROWN:
15	plausible mechanism.	15	Q Have you looked at the testing that
16	MS. BROWN:	16	public health authorities like the FDA have done
17	Q Has that conclusion been published in	17	on Johnson & Johnson's baby powder?
18	the peer-reviewed literature, Doctor?	18	A I believe some of that was provided,
19	A No, it has not.	19	yes.
20	Q And, in fact, as you all of the	20	Q Are you relying on any finding of
21	opinions that you gave here today, those opinions	21	asbestos from Dr. Longo in forming your opinions
22	have not been published in the peer review	22	here today?
23	literature. True?	23	A The
24	MS. O'DELL:	24	MS. O'DELL:
	Page 383		Page 385
1	Object to the form.	1	Object to the form.
2	A Not at this time.	2	Object to the form. A The inclusion of the asbestos, again,
	A Not at this time.Q Counsel asked you some questions about	l .	Object to the form. A The inclusion of the asbestos, again, as as as we've discussed a few times today,
2	A Not at this time. Q Counsel asked you some questions about Dr. Longo. Do you recall that?	2 3 4	Object to the form. A The inclusion of the asbestos, again, as as as we've discussed a few times today, the conclusion I developed from the report were
2	A Not at this time. Q Counsel asked you some questions about Dr. Longo. Do you recall that? A Yes.	2 3 4 5	Object to the form. A The inclusion of the asbestos, again, as as as we've discussed a few times today, the conclusion I developed from the report were not dependent or independent of any one or
2 3 4 5 6	 A Not at this time. Q Counsel asked you some questions about Dr. Longo. Do you recall that? A Yes. Q You've done nothing to validate the 	2 3 4	Object to the form. A The inclusion of the asbestos, again, as as as we've discussed a few times today, the conclusion I developed from the report were not dependent or independent of any one or another component of of the talcum powder.
2 3 4 5	 A Not at this time. Q Counsel asked you some questions about Dr. Longo. Do you recall that? A Yes. Q You've done nothing to validate the findings that Dr. Longo writes about in his 	2 3 4 5	Object to the form. A The inclusion of the asbestos, again, as as as we've discussed a few times today, the conclusion I developed from the report were not dependent or independent of any one or another component of of the talcum powder. As we discussed a bit ago, the presence
2 3 4 5 6 7 8	A Not at this time. Q Counsel asked you some questions about Dr. Longo. Do you recall that? A Yes. Q You've done nothing to validate the findings that Dr. Longo writes about in his reports. Is that fair?	2 3 4 5 6 7 8	Object to the form. A The inclusion of the asbestos, again, as as as we've discussed a few times today, the conclusion I developed from the report were not dependent or independent of any one or another component of of the talcum powder. As we discussed a bit ago, the presence of asbestos as a known inflammatory mediator, as
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A Not at this time. Q Counsel asked you some questions about Dr. Longo. Do you recall that? A Yes. Q You've done nothing to validate the findings that Dr. Longo writes about in his reports. Is that fair? A No, I have not done any experiments to validate those findings. Q Okay. Are you aware that some of the samples that Dr. Longo tests and purports to find asbestos were purchased off of eBay? MS. O'DELL: Misstates well A My review of the report, I was did not include the I guess the specific history of each of the samples. MS. BROWN: Q Do you understand that asbestos that minerals like tremolite or anthophyllite, they	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Object to the form. A The inclusion of the asbestos, again, as as as we've discussed a few times today, the conclusion I developed from the report were not dependent or independent of any one or another component of of the talcum powder. As we discussed a bit ago, the presence of asbestos as a known inflammatory mediator, as well as potential carcinogen, I think just helps lend additional support to the biological plausibility of the mechanism. But I think that biological mechanism is not dependent on the presence of asbestos. MS. BROWN: Q Other than plaintiffs' expert, Dr. Longo, are you relying on anything else to support the potential for asbestos in baby powder? MS. O'DELL: Object to the form. A There's so I saw reference to

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Shawn Levy, Ph.D.

	Page 386		Page 388
1	asbestos content in talc during the overall	1	opinion is independent of Dr. Crowley's findings.
2	review.	2	Is that fair?
3	MS. BROWN:	3	MS. O'DELL:
4	Q Sitting here today, are you aware	4	Objection to form. Vague.
5	whether or not that was Johnson & Johnson's	5	A Well, my my my opinion, again,
6	cosmetic talc?	6	similar to as we've been discussing that, it
7	MS. O'DELL:	7	considers the totality of the information
8	Object to the form.	8	available, including Dr. Crowley's report, but
9	A I would have to look closely. I'm not	9	does not rely on any one specific report or
10	aware of that specifically.	10	otherwise.
11	MS. BROWN:	11	And, so, the again, restating
12	Q Counsel asked you some questions about	12	similar to the asbestos, the presence of
13	Dr. Crowley and whether or not you were relying	13	potential irritants as another component in
14	on the opinions he reached. Do you remember	14	the in the product just provides additional
15	those questions?	15	support for that inflammatory mechanism playing a
16	A I do.	16	significant role.
17	Q What opinions did Dr. Crowley reach on	17	MS. BROWN:
18	which you rely?	18	Q If none of the chemicals Dr. Crowley
19	A Dr. Crowley performed an analysis of	19	identified were present in baby powder, would you
20	the fragrance components and made assessments of	20	hold the same opinion of biological plausibility?
21	the individual chemical components and their	21	A I would.
22	relationship to or I should say their their	22	Q If no asbestos was present in baby
23	inclusion on various lists for their their	23	powder, would you hold the same opinion on
24	chemical properties or safety. And in most in	24	biological plausibility?
	Page 387		Page 389
1	the majority of cases, the chemicals were not	1	A Yes.
2	listed. In a number of cases, there were large	2	MS. BROWN:
3	numbers of chemicals listed as either irritants	3	No further questions. Thank you.
4	and, therefore, able to cause inflammation, or,	4	MS. O'DELL:
5	in a few cases, as potential carcinogens.	5	I have just one follow-up.
6	And, so, it was that review of that	6	Or do you have anything
7	information, similar to our discussions around	7	MR. FERGUSON:
8	asbestos, that I included or agreed with his	8	Nothing further.
9	opinions regarding that on the last paragraph or	9	MS. O'DELL:
10	close to the last paragraph of the report that	10	Excuse me. I'm sorry.
11	stated I was just in agreement that these that	11	EXAMINATION
12	those chemicals contribute to the inflammatory	12	BY MS. O'DELL:
13	properties observed.	13	Q Dr. Crowley, are your opinions in this
14	Q Do you know in what quantity the	14	case contained in your report as well as in the
15	chemicals Dr. Crowley identifies are present, if	15	testimony that you've given here today?
16	at all, in Johnson & Johnson's products?	16	A You said Dr. Crowley.
17	A No. I wasn't asked to provide that	17	Q Oh. Excuse me. Sorry. I had
		18	Dr. Crowley on my mind.
18	review. I would defer to Dr. Crowley's report		
18 19	review. I would defer to Dr. Crowley's report regarding any quantitative analysis of those	19	Dr. Levy
	· -		Dr. Levy It's getting late in the day.
19	regarding any quantitative analysis of those	19	
19 20	regarding any quantitative analysis of those chemicals.	19 20	It's getting late in the day.
19 20 21	regarding any quantitative analysis of those chemicals. Q And, as it relates to your opinion,	19 20 21	It's getting late in the day. Dr. Levy, are your opinions in this
19 20 21 22	regarding any quantitative analysis of those chemicals. Q And, as it relates to your opinion, Dr. Levy, it makes no difference whether	19 20 21 22	It's getting late in the day. Dr. Levy, are your opinions in this case expressed in your report and your testimony

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Shawn Levy, Ph.D.

	Page 390		Page 392
1	Q And do you hold those opinions to a	1	ERRATA PAGE
2	reasonable degree of scientific certainty?	2	
3	A Yes.	3	I, SHAWN LEVY, Ph.D., the witness herein,
4	MS. O'DELL:		have read the transcript of my testimony, and the
5	I have nothing further.	4	same is true and correct, to the best of my
6	MS. BROWN:	5	knowledge, with the exceptions of the following changes noted below, if any:
7	Thanks for your time, Doctor.	6	Page/Line Word(s) to be changed/reason Correct Word
8	I think we're off the record.	7	rage Elife Word(s) to be changed reason correct Word
9	VIDEOGRAPHER:	8	
10	We're off the record. The time is	9	
11	6 p.m.	10	
12	(Deposition concluded at 6:00 p.m.)	11	
13	(- · · · · · · · · · · · · · · · · · · ·	12	
14		13	
15		14	
16		15 16	
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18		18	
19		19	
20		20	
21		21	
22			
23		22	SHAWN LEVY, Ph.D.
24		23	
2.1		24	
	Page 391		Page 393
1	CERTIFICATE	1	DECLARATION OF WITNESS
2	CERTIFICATE	2	BEEE MUTTON OF WITNESS
3	I do hereby certify that the above and	3	I, the undersigned, declare under penalty
4	foregoing transcript of proceedings in the matter	4	of perjury that I have read the foregoing
5	aforementioned was taken down by me in machine	5	transcript, and I have made any corrections,
6	shorthand, and the questions and answers thereto	6	additions, or deletions that I was desirous of
7	were reduced to writing under my personal	7	making; that the foregoing is a true and correct
8	supervision, and that the foregoing represents a	8	transcript of my testimony contained herein.
9		1	
	true and correct transcript of the proceedings	9	EXECUTED this day of,
10	true and correct transcript of the proceedings given by said witness upon said hearing.	9	EXECUTED this day of, 2019, at,
10 11	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of	10	EXECUTED this day of,
10 11 12	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of counsel nor of kin to the parties to the action,	10	EXECUTED this day of, 2019, at,
10 11 12 13	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of	10 11 12	EXECUTED this day of, 2019, at,
10 11 12 13 14	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of counsel nor of kin to the parties to the action,	10 11 12 13	EXECUTED this day of, 2019, at,
10 11 12 13 14 15	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of	10 11 12	EXECUTED this day of, 2019, at,
10 11 12 13 14	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of	10 11 12 13 14	EXECUTED this day of, 2019, at,
10 11 12 13 14 15	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of	10 11 12 13 14	EXECUTED this day of, 2019, at,
10 11 12 13 14 15 16 17	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of	10 11 12 13 14 15	EXECUTED this day of, 2019, at, (City) (State)
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10 11 12 13 14 15 16 17 18 19	true and correct transcript of the proceedings given by said witness upon said hearing. I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of said cause. LOIS ANNE ROBINSON, RPR, RMR REGISTERED DIPLOMATE REPORTER	10 11 12 13 14 15 16 17 18 19 20 21	EXECUTED this day of, 2019, at, (City) (State)
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